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

GB/T 33588.3-2025

Replacing GB/T 33588.3-2020

**Lightning protection system components(LPSC) - Part 3:
Requirements for isolating spark gaps(ISGs)
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 3 of GB/T 33588 Lightning Protection System Components (LPSC). GB/T 33588 has been published as follows part.

- Part 1: Requirements for connectors;
- Part 2: Requirements for lightning arresters, down conductors and grounding electrodes;
- Part 3: Requirements for isolating spark gaps (ISGs);
- Part 4: Requirements for conductor fasteners;
- Part 5: Requirements for grounding electrode test boxes and grounding electrode seals;
- Part 6: Requirements for lightning strike counters (LSCs);
- Part 7: Requirements for grounding resistance reduction materials;

--- Part 8: Requirements for isolation components of lightning protection systems.

This document replaces GB/T 33588.3-2020 "Lightning protection system components (LPSC) Part 3: Isolating spark gap (ISG) Compared with GB/T 33588.3-2020, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added corresponding clauses for compliance verification of rated impulse discharge voltage and rated withstand voltage (see 5.5 and 5.6);
- b) The requirements for UV resistance have been deleted (see 5.9 of the 2020 edition);
- c) Added test requirements for the applicability of tests performed in previous versions (see 6.1);
- d) The impact test method has been changed (see 6.4.1, 6.4 of the 2020 edition);
- e) Deleted "Figure 1 Pendulum impact test apparatus" (see Figure 1 of the 2020 edition);
- f) The qualification criteria for withstand voltage have been changed (see 6.5.2, 6.5.2 of the 2020 edition);
- g) The contents of standards and references have been changed (see 8.4, 8.4 of the 2020 edition);
- h) Added recording of results and parameters [see 8.8h)~j)];
- i) The test process of ISGs has been changed (see Appendix A, Appendix A of the 2020 edition);
- j) Added the normative appendix "Applicability of tests performed according to previous versions" (see Appendix D).

This document is equivalent to IEC 62561-3:2023 "Lightning protection system components (LPSC) Part 3: Isolating spark gaps (ISGs) Requirements.

The following minimal editorial changes were made to this document.

- Deleted the third item in the scope "Auxiliary grounding electrode of fault voltage protector". my country no longer uses auxiliary grounding electrode Fault voltage protector for grounding electrode;
- Change "IEC 62305-1:2010" in Chapter 2 to "IEC 62305-1" to be consistent with Table 1;
- Added notes in 6.1 to facilitate understanding and application.

Introduction

GB/T 33588 "Lightning protection system components (LPSC)" aims to establish the lightning protection system components designed and installed according to the IEC 62305 series of standards.

The requirements and test methods for various components used in the life protection system (LPS) are intended to consist of eight parts.

--- Part 1: Requirements for connectors. The purpose is to establish the requirements and test methods for metal connectors in lightning protection systems.

--- Part 2: Requirements for lightning terminals, down conductors and grounding electrodes. The purpose is to establish the requirements for the metallic conductors that constitute lightning terminals and down conductors.

Requirements and test methods for metal grounding electrodes (non-"natural" conductors) and metal grounding electrodes that constitute the grounding system.

--- Part 3: Requirements for Isolating Spark Gaps (ISGs). The purpose is to establish the requirements for isolating spark gaps in lightning protection systems and test methods.

--- Part 4: Requirements for conductor fasteners. The purpose is to establish the metal fasteners used to fix and support air terminals, down conductors and grounding devices.

Requirements and test methods for fasteners for metal and non-metallic conductors.

--- Part 5: Requirements for grounding electrode detection boxes and grounding electrode seals. The purpose is to establish grounding electrode detection boxes installed underground Requirements and test methods for terminal boxes and earthing electrode seals.

--- Part 6: Requirements for lightning strike counters (LSCs). The purpose is to establish the requirements and test methods for lightning strike counters.

--- Part 7: Requirements for grounding resistance reduction materials. The purpose is to establish the requirements and tests for grounding resistance reduction materials in lightning protection systems method.

--- Part 8: Requirements for isolation components of lightning protection systems. The purpose is to establish the requirements for insulation supports and insulation down conductors and their special tight Requirements and test methods for firmware.

Lightning Protection System Components (LPSC) Part 3: Requirements for Isolating Spark Gaps (ISGs)

1 Scope

This document specifies the requirements for isolating spark gaps (ISGs) in lightning protection systems and describes the corresponding test methods.

Some metal facilities are not allowed to be directly connected to the lightning protection system for equipotential reasons.

Used for indirect equipotential connection between the lightning protection system and

these metal facilities.

Typical applications include connection to.

- Grounding system of power facilities;
- Grounding system of telecommunication system;
- Rail earthing electrodes for AC and DC railway systems;
- Laboratory measurement grounding electrode;
- Installations with cathodic protection and stray current systems;
- User incoming poles for low voltage overhead cables;
- Bridged across the insulating flange or insulating joint of the pipeline.

This document is not applicable to applications where there is continuous current.

ISGs used in hazardous environments must take into account additional requirements.

Note 1: In EU countries, for component test requirements for use in explosive environments, see CLC/T S50703-2.

NOTE 2 This document is not applicable to testing of components in explosive atmospheres [see IEC 60079-10 (all parts)].

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 2423.18-2021 Environmental testing Part 2: Test methods Test Kb. Salt spray, alternating (sodium chloride solution) (IEC 60068-2-52:2017, IDT) GB/T 2423.55-2023 Environmental testing Part 2: Test methods Test Eh. Hammer test (IEC 60068-2-75. 2014, IDT)

GB/T 16422.2-2022 Plastics laboratory light source exposure test method Part 2: Xenon arc lamp (ISO 4892-2:2013, IDT) GB/T 16422.3-2022 Plastics laboratory light source exposure test method Part 3: Fluorescent ultraviolet lamp (ISO 4892-3. 2016, IDT)

GB/T 16422.4-2022 Plastics laboratory light source exposure test method Part 4: Open carbon arc lamp (ISO 4892-4.