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

GB/T 4787-2010

**Grading capacitors for high-voltage alternating current
circuit-breakers - Part 1: General
(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 of Standardization Documents" Drafting.

This document is the first part of GB/T 4787 "Voltage Equalizing Capacitors for High Voltage AC Circuit Breakers". GB/T 4787 has released the following section.

---Part 1: General Provisions.

This document replaces GB/T 4787-2010 "Voltage Equalizing Capacitors for High-Voltage

AC Circuit Breakers". Compared with GB/T 4787-2010, except for in addition to structural adjustments and editorial changes, the main technical changes are as follows.

--- Deleted "this standard does not apply to high-voltage ceramic capacitors" in the scope chapter (see Chapter 1 of the 2010 edition), and added GIS Related content and requirements for mounted capacitors (see Chapter 1);

---Changed the normative reference documents (see Chapter 2, Chapter 2 of the 2010 edition);

--- 20 terms such as "arc distance" have been added (see Chapter 3);

---The optimal value of the highest temperature around the GIS built-in capacitor has been added (see 5.2.1);

---Added "mechanical stress and vibration" (see 5.2.3);

---Added "Additional Use Conditions for GIS Built-in Capacitors" (see 5.2.4);

--- Added "Earthquake" (see 5.3.2);

---Added the calculation formula of "capacitor rated voltage" (see 6.1);

---The standard value of rated frequency "50Hz and 60Hz" has been added (see 6.3);

---The capacitance deviation is specified according to the product category (see 7.1);

--- Added "Minimum withstand value of mechanical bending load" and calculation formula (see 7.4);

--- Added "Requirements for Capacitor Enclosed Medium" (see 7.5);

--- Deleted the "discharge test" in the type test (see Chapter 7 of the 2010 edition), and added the "radio interference voltage (RIV) test" "Test" "Self-resonance frequency measurement" and "Tightness test of GIS built-in capacitors" (see 8.6, 8.7, 8.10);

---Changed the test procedure, measured voltage and allowable partial discharge level for partial discharge measurement (see 8.4.4, 7.3.8 in 2010 edition);

--- Change "Lightning impulse withstand voltage test" to "Lightning and impulse chopping voltage test", and change the test judgment standard to "Rated the capacitance, tandelta and partial discharge of the voltage measurement unit are verified" (see 8.4.6, 7.3.6.1 of the 2010 edition);

---The test judgment standard of "power frequency voltage test" is changed to "to verify by measuring the capacitance, tandelta and partial discharge of the unit with rated voltage" (See 8.4.7, 7.3.5.1 of the 2010 edition);

--- "2h power frequency withstand voltage test" is changed to "voltage test under low temperature and high temperature" (see 8.5, 7.3.5 in 2010 edition);

---The name of "mechanical strength test" is changed to "mechanical bending test", and the calculation formula of test force is given (see 8.8, 2010 edition 7.3.9);

---Changed the method and technical requirements of the leak test in the type test item (see 8.9, 7.3.2 of the 2010 edition);

--- Deleted the "discharge test" in the routine test project (see 7.3.7 of the 2010 edition), and added GIS built-in capacitor seal Sexual test requirements (see 9.6.3);

---Changed the test method and technical requirements of the leak test in the routine test project (see 9.6, 9.6 of the 2010 edition);

--- Added "Transportation, Storage, Installation, Operation and Maintenance Rules" (see Chapter 10);

---Change the "safety" technical requirements (see Chapter 11, Chapter 9 of the 2010 edition);

---Changed the "environmental aspects" technical requirements (see Chapter 10, 2010 edition of 9.2).

This document uses the redrafting method to modify and adopt IEC 62146-1:2016 ``Voltage equalizing capacitors for high-voltage AC circuit breakers-Part 1.

General Provisions.

Compared with IEC 62146-1:2016, this document has structural adjustments. Appendix A lists this document and IEC 62146-1:2016 the comparison list of the chapter number comparison.

Compared with IEC 62146-1:2016, this document has technical differences, and the clauses related to these differences have been passed on the outer margins.

The vertical single line (|) of the position is marked, and a list of the corresponding technical differences and their reasons is given in Appendix B.

This document has made the following editorial changes.

---In accordance with the requirements of GB/T 1.1-2020, the compilation of the "Scope" chapter was standardized;

---Adjusted references.

Introduction

IEC/TC33 is formulating IEC 62146-2 "Voltage Equalizing Capacitors for High Voltage AC Circuit Breakers Part 2: TRV Capacitors". for in order to better adopt international standards, the National Power Capacitor Standardization Technical Committee (SAC/TC45) decided after research that the high-voltage AC circuit breaker the voltage equalizing

capacitor GB/T 4787 is intended to be composed of the following two parts.

---Part 1: General Provisions;

---Part 2: TRV capacitors.

Voltage equalizing capacitor for high voltage AC circuit breaker Part 1: General Provisions

1 Scope

This document specifies the use conditions, ratings, design and structure, testing, transportation, storage, and safety of voltage equalizing capacitors for high-voltage AC circuit breakers.

Installation, operation and maintenance rules, safety, and environmental aspects.

This document applies to voltage equalizing capacitors connected in parallel with the breaker of the circuit breaker. Its function is to improve the two extinguishing chamber units of the multi-fracture circuit breaker.

Terminal voltage distribution.

The equalizing capacitor can also be used in parallel with the arc extinguishing chamber unit on the single-break circuit breaker to suppress the transient recovery voltage (TRV).

The equalizing capacitor is a component of the circuit breaker and should meet the technical requirements of the circuit breaker.

This document is applicable to voltage equalizing capacitors that meet one or both of the following categories.

---Installed on the air insulated circuit breaker;

---Installed on a closed circuit breaker.

The tests on the above different types of voltage equalizing capacitors are different in some cases.

The purpose of this document is.

---Uniform rules for specifying performance, testing and ratings;

---Specify specific safety rules;

---Provide installation and operation guidelines.

This document does not apply to phase-to-ground capacitors installed on circuit breakers to suppress transient recovery voltage.