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

GB/T 18494.2-2022

**Convactor transformers - Part 2: Transformers for HVDC
applications**

Issued on: March 9, 2022

Implemented on: October 1, 2022

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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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"

drafted.

This document is part 2 of GB/T 18494 "Converter Transformers". GB/T 18494 has released the following parts.

- Part 1. Industrial converter transformers;
- Part 2. Converter transformers for HVDC transmission;
- Part 3. Application guidelines.

This document replaces GB/T 18494.2-2007 "Converter Transformers Part 2. Converter Transformers for High Voltage Direct Current Transmission", and

Compared with GB/T 18494.2-2007, in addition to structural adjustment and editorial changes, the main technical changes are as follows.

- Modified normative references (see Chapter 2, Chapter 2 of the 2007 edition);
- Added the terms and definitions of "valve side winding" and "grid side winding" (see Chapter 3);
- The conditions of use have been supplemented and improved (see Chapter 5, Chapter 4 of the 2007 edition);
- The number of harmonics in loss calculation is increased from 25 to 49 (see Chapter 7, Chapter 8 of the 2007 edition);
- The relevant content of the test has been supplemented and improved (see Chapter 8 and Chapter 9, Chapter 11 of the 2007 edition);
- The relevant requirements for sound level have been revised and improved (see Chapter 11, Chapter 10 of the 2007 edition);

--- The relevant requirements for casing have been revised and improved (see Chapter 12, Chapter 14 of the.2007 edition);

--- The relevant requirements of the tap changer have been revised and improved (see Chapter 13, Chapter 15 of the.2007 edition);

--- Added provisions for the nameplate (see Chapter 16).

This document uses the redrafting method to modify the use of IEC /IEEE60076-57-129.2017 "Power Transformers Part 57-129.High

Converter Transformers for Voltage Direct Current Transmission.

The following adjustments have been made in the text structure of this document.

---Adjusted 3.1 and 3.2 of the original IEC text to Chapter 3 and Chapter 4 of this document respectively, and retained the references in Chapter 3 of the original IEC text.

introduction;

--- Adjusted the article number and the serial number of the note in the original IEC text, and adjusted 8.2.2~8.2.4 to 8.2.1~8.2.3, 9.6.2~

9.6.5 is adjusted to 9.6.1~9.6.4, 9.9~9.21 is adjusted to 9.8~9.20; Notes 1 and 2 in 9.13.2 are adjusted to 9.12.2

Note 2 and Note 3 in;

--- Added Chapters 17 and 18 so that Appendix D and Appendix E are mentioned in the main text;

--- Adjusted the order of the appendices in the original IEC text, and adjusted Appendix F to Appendix B, Appendix E to Appendix C, and Appendix C to adjust

The whole is Appendix D, and Appendix D is adjusted to Appendix E;

--- Deleted the content of IEC original C.2, and the corresponding chapter and article numbers are extended in turn.

The technical differences between this document and IEC /IEEE60076-57-129.2017 and the reasons are as follows.

---IEC The original text is compatible with the contents of both the IEC standard and the IEEE standard. This document only adopts the contents of the IEC standard, and deletes all the contents of the IEC standard.

The content of the IEEE standard in the paper is in line with the actual situation of our country;

---In Chapter 1, the provisions that this document does not apply to "Technical Specifications for Transformers for Flexible DC Transmission (see GB/T 37011)" are added,

To be compatible with my country's standard system;

--- Regarding normative reference documents, this document has made adjustments with technical differences to adapt to the technical conditions of our country and the circumstances of the adjustment.

The situation is reflected in Chapter 2 "Normative References", and the specific adjustments are as follows.

* Replaced IEC 60076-1.2011 and GB/T 1094.2 generation with GB/T 1094.1-2013, which adopts international standard

Instead of IEC 60076-2, GB/T 1094.3-2017 instead of IEC 60076-3.2013, GB/T 1094.5 instead

IEC 60076-5, GB/T 1094.10 replace IEC 60076-10, GB/T 1094.18 replace IEC 60076-18, GB/T 4109 replaces IEC 60137, GB/T 7354 replaces IEC 60270, GB/T 10230.1 replaces the IEC 60214-1;

* Replacing IEC 60050-421 with non-equivalent GB/T 2900.95 adopting international standards;

* Added references to GB/T 1094.7 and JB/T 501;

--- Deleted Chapter 4 "Use of Normative Reference Documents" in the original IEC text to conform to the actual situation in our country;

--- Modified Table 1 of 8.1 by deleting "extended polarity reversal test", "repeated impulse waveform (RSO) measurement" and "starting

Lifting and moving device test" to meet the actual situation in our country;

--- Deleted the content of IEC original 8.2.1 to be compatible with my country's standard system;

---In 8.3.1, "It should be noted that the voltage transmitted to the valve side winding cannot exceed the specified operating shock level of the valve side winding",

To improve the standard technical content;

--- Deleted the content of IEC original 9.6.1 "DC withstand voltage test is not applicable to transformers for extended polarity reversal test" to comply with

the actual situation in our country;

---Improved the content of paragraphs 1 and 2 of 9.6.4, and the test method cited GB/T 1094.3-2017 to meet the requirements of our

the actual situation of the country;

--- Deleted the paragraph 2 of IEC original 9.7.1 "The polarity reversal test does not apply to transformers for extended polarity reversal tests".

to meet the actual situation of our country;

--- The test time in 9.7.3 is adjusted from "30min" to "45min" to conform to the actual situation in my country;

---Improved the content of paragraphs 1 and 2 of 9.7.4, and the test method cited GB/T 1094.3-2017 to meet the requirements of our

the actual situation of the country;

--- Deleted the content of IEC original 9.8 "extended polarity reversal test" to conform to the actual situation of our country;

---In the test purpose of 9.12.1 (corresponding to IEC original 9.13.1), "determining the temperature rise of the surface of the fuel tank" has been added to conform to the actual situation of our country.

Condition;

---In 9.15 and 9.16 (corresponding to 9.16 and 9.17 of the original IEC text), JB/T 501 is used instead of IEEEStdC57.12.90, and added

Added "during the test, the oil temperature is generally 20 degrees C+/-10 degrees C" to conform to the actual situation in my country;

--- Deleted "Once the number of operations is very high (30,000 times per year), online switching of the oil filter should be considered" in 13.2 to comply with my country's

the actual situation;

--- Deleted the content of Appendix B of the IEC original text to be compatible with my country's standard system;

---In the "system data" of E.2, the "current rate of change (dl/dt)" and "DC bias current" are added to conform to the actual situation in our country

Condition.

The following editorial changes have been made to this document.

--- Modified the standard name;

---In 5.4, a reference to Appendix A was added;

--- The names of some test items in Table 1 of 8.1 have been improved, and the repeated "impact test" and "AC test" have been deleted.

"Test" two lines;