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

GB/T 10230.2-2025

Replacing GB/T 10230.2-2007

Tap-changers - Part 2: Application guidelines

分接开关 第2部分：应用导则

(English Translation)

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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 Part 2 of GB/T 10230 "Tap switches". GB/T 10230 has already published the following parts.

---Part 1: Performance Requirements and Test Methods;

---Part 2: Application Guidelines this document replaces GB/T 10230.2-2007 "Tap switches - Part 2: Application guidelines" and is consistent with GB/T 10230.2-2007.

Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows.

---Added the terms "linear non-excitation tap changer", "rotary non-excitation tap changer", "fusion", and "continuous uninterrupted operation".

and definition (see Chapter 3);

---The application of tap changers in transformers and reactors has been added (see Chapter 5);

---Added information on the working principle of on-load tap changers, their actual layout, the types of off-load tap changers, and their applications in transformers.

Position within the enclosure or housing of the transformer, gas-filled tap changer, stepper regulator, lead/lag switch, and other components used in distribution transformers.

On-load tap changers (see 6.1.2, 6.1.3, 6.2.2, 6.2.3, 6.3.3, 6.4.3, 6.4.4, 6.4.5);

---Changes were made to the types of on-load tap changers and the content regarding electronic tap changers, replacing oil-immersed tap changers with the term "tap changer environment".

Dry-type tap changers (see 6.1, 6.3, 6.4, 5.2, 5.4, 5.5 and Chapter 7 of the 2007 edition);

---The selection of on-load tap changers has been changed (see 7.2, 6.2 in the 2007 edition);

---Added information on the application of on-load tap changers and other important parameters of on-load tap changers (see 7.3, 7.4);

---The selection of the no-load tap changer has been changed (see 8.2, 6.3 in the 2007 edition);

---Added information on the application of non-excited tap changers and other important parameters of non-excited tap changers (see 8.3, 8.4);

---The protection device for the on-load tap changer has been modified (see 9.2, 9.4, 9.5, 9.6, 9.7, 9.8, and 5.7 of the 2007 edition);

---A pressure rise protection device has been added to the SF6 changeover switch or selector switch (see 9.3);

---The dehumidifier and auxiliary maintenance devices have been modified (see 10.5, 10.7, and 8.6 and 8.5 in the 2007 edition);

---An oil filtration device has been added (see 10.6);

---Added information on the storage and installation of tap changers (see Chapter 11);

---Added debugging (see 12.1);

---Field services have been modified (see 12.2, 12.3, 12.4; 9.1, 9.2, 9.3 of the 2007 version);

- The protected section (11.1 of the 2007 version) has been removed;
- The security content has been changed (see Chapter 13, 11.2 and 11.3 of the 2007 edition);
- The required information for on-load tap changers and off-load tap changers during the inquiry or ordering stage has been revised (see 14.1, 14.2, 2007 edition).
10.1, 10.2).

This document is modified to adopt IEC/IEEE 60214-2.2019 "Tap switches - Part 2: Application guidelines".

Compared with IEC/IEEE 60214-2.2019, this document has undergone the following structural adjustments.

- Chapter 3 corresponds to section 3.1 of the original IEC text, where sections 3.1 to 3.4 correspond to sections 3.1.1 to 3.1.4 of the original IEC text, respectively;
- Chapter 4 corresponds to section 3.2 of the original IEC text;
- Chapter 4 of the original IEC text has been deleted;
- In section 5.2, Figure 1 in the original IEC text was changed to Figure 1a), and Figures 1b) and 1c) were added.
- Figure 10e has been added in 6.1.2.1.3.1).
- Added version 6.1.2.1.3.7.

The technical differences between this document and IEC/IEEE 60214-2.2019, and the reasons therefor, are as follows.

- The original IEC document is compatible with both IEC and IEEE standards. This document only uses the content of the IEC standard.

All technical content related to IEEE standards (including ASTM standards) has been removed to conform to my country's actual situation;

- GB/T 2900.95 (see Chapter 3) has been used in place of IEC 60050-421 (see Chapter 3) to adapt to my country's technical conditions;
- IEC 60296 (see 6.3.1.1~6.3.1.3, 7.4.7.1 and 9.5) has been replaced with the normatively referenced GB/T 2536 to suit my needs.

The country's technological conditions;

- GB/T 1094.11 (see 6.3.2) has been replaced with the normatively referenced GB/T 1094.11 to adapt to my country's technical conditions;
- IEC 60076-7 (see 7.2.1.3.2, 7.4.7.2, 8.2.1.2 and 14.1) has been replaced by the

normatively referenced GB/T 1094.7.

Adapting to my country's technological conditions;

---IEC 60076-6 has been changed from a reference to a normative reference, and GB/T 1094.6, which adopts the international standard, has been modified.

A substitution was made (see 7.3.6) to suit my country's actual situation;

---GB/T 17623 (see 12.4.2.3.1) has been replaced with the normatively referenced GB/T 17623 to adapt to my country's technical conditions;

---Change IEC 60475 from a reference to a normative reference, and use GB/T 41146, which adopts the international standard, instead.

A replacement was implemented (see 12.4.2.3.1) to suit my country's actual situation;

---GB 507 (see 12.4.2.3.3) has been replaced with the normatively referenced GB 507 to adapt to my country's technical conditions;

---IEC 60422 and IEC 60599 have been changed from references to normative references (see 12.4.2.3.2~12.4.2.3.4) to...

It conforms to my country's actual situation;

---Added two common tap switches for star-connected windings. "tap switch for mid-range voltage regulation" and "tap switch for line-end voltage regulation".

The layout diagram should be revised, and all instances of "LV" in Figure 4 and related text should be changed to "MV" to reflect the actual situation in my country (see [link]).

---Change "The toggle switch operates within a time range of approximately 50ms to 150ms" to "The toggle switch operates within a time range of approximately 40ms to 150ms".

Within a specific timeframe, to align with my country's actual circumstances (see 6.1.2.1.1);

---Added a basic switching mode and phase control. "The switching switch has two transition resistors and two VIs, using operation cycle number 1 or 2".

The corresponding connection diagram [see Figure 10e] should be adapted to suit my country's actual situation.

---Added the technology of "using a switching switch with two transition resistors and two vacuum interrupters (VI) with operating cycle number 1 or 2".

To accommodate my country's actual situation (see 6.1.2.1.3.7);

---Added "Synchronization time requirements shall be determined by the user and the manufacturer through negotiation based on different application scenarios" to ensure that the switching switch or selection Synchronous operation of the selector switch (see 7.3.9);