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**High-voltage alternating current disconnectors and earthing  
switches**

高压交流隔离开关和接地开关

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## 1 Scope

The document lays down the normal and special service conditions, the rated values and the design and construction requirements for high-voltage alternating current disconnectors and earthing switches; it describes the corresponding type test and routine test methods, provides a guide to selection, and sets rules for transport, storage, installation, operation and maintenance.

It applies to alternating current disconnectors and earthing switches designed for installation indoors and outdoors and operating at a frequency of 50 Hz and below in systems of nominal voltage 3 kV and above.

It applies as well to the operating mechanisms of those disconnectors and earthing switches and to their auxiliary equipment.

The additional requirements for disconnectors and earthing switches inside metal-enclosed switchgear and controlgear are given in GB/T 3906-2020 and GB/T 7674-2020.

It also applies to switching devices which, besides other functions, have an isolating and/or an earthing function, such as high-speed earthing switches, circuit-breakers and switches.

## 2 Normative references

The clause states that the contents of the documents listed become indispensable provisions of this document through the normative references made in the text; for dated references only the edition corresponding to that date applies, while for undated references the latest edition, including all amendments, applies.

The documents cited are GB/T 311.1-2012, GB/T 1804-2000, GB/T 1984-2014, GB/T 2900.19-2022, GB/T 2900.20-2016, GB/T 2900.57-2008, GB/T 2900.83-2008, GB/T 3906-2020, GB/T 4208-2017, GB/T 4473-2018, GB/T 7674-2020, GB/T 11022-2020, GB/T 20138-2006 and IEC/TR 62271-305.

## 3 Terms and definitions

The terms and definitions given in GB/T 2900.19-2022, GB/T 2900.20-2016, GB/T 2900.57-2008, GB/T 2900.83-2008 and GB/T 11022-2020, together with those that follow, apply to this document.

### 3.1 General terms and definitions

3.1.101 Indoor switchgear and controlgear: switchgear and controlgear that cannot withstand the action of wind, rain, snow, abnormal pollution, ice and heavy frost, and that is suitable for installation inside a building or a shelter. [SOURCE: GB/T 2900.20-2016, 3.4, modified]

3.1.102 Outdoor switchgear and controlgear: switchgear and controlgear able to withstand the action of wind, rain, snow, pollution, condensation, ice and heavy frost, and suitable for installation in the open air. [SOURCE: GB/T 2900.20-2016, 3.5]

3.1.103 User: the individual or the legal entity that uses the disconnecter or the earthing switch. A note adds that the user may be the purchaser of the disconnecter or earthing switch, an electricity supplier for instance, and may also be a contracting company, the personnel responsible for installation, maintenance or operation, other personnel temporarily or permanently responsible for the disconnecter, the earthing switch or the substation, and the operating personnel of the switchgear.

## 3.2 Assemblies of switchgear and controlgear

3.2.1 Test object: the equipment representative of the switchgear and controlgear on which a given type test is carried out. [SOURCE: GB/T 11022-2020, 3.2.1]

## 3.4 Switching devices

3.4.101 Disconnector: a switching device which, in the open position, shows between its contacts an insulating distance meeting the specified requirements together with a visible indication of the open state, and which, in the closed position, can carry the current under normal circuit conditions and the current under specified abnormal conditions, a short circuit for instance, for a specified time. A first note explains that the disconnector has the ability to open and close a circuit when the circuit current is negligible or when there is no appreciable change of voltage across the two line terminals of each pole before and after the operation. A second note explains what a negligible current means, giving the capacitive current of bushings, busbars, connections, very short cables, the current of the permanently connected grading impedance of circuit-breakers and the current of voltage transformers and dividers, with a reference to IEC/TR 62271-305; for rated voltages of 363 kV and below, a current not exceeding 0.5 A is a negligible current, while for rated voltages above 363 kV with a current exceeding 0.5 A the manufacturer is to be consulted; the same note explains that no appreciable change of voltage refers to applications such as bypassing induction voltage regulators or circuit-breakers, and busbar transfer. [SOURCE: GB/T 2900.20-2016, 6.5, modified]

3.4.102 Single-column disconnector: a disconnector in which the fixed contact of each pole is suspended from the busbar or from a separate support, the moving contact of each pole is carried by a separate base or frame, and the direction of the isolating gap is perpendicular to the plane of the base. A note gives the pantograph disconnector and the semi-pantograph disconnector as typical examples.