

ICS 29.130.10

CCS K 43



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

GB 1985-2014

Replacing GB/T 1985-2014

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

高压交流隔离开关和接地开关

(English Translation)

Issued on: September 7, 2023

Implemented on: April 1, 2024

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

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative reference documents	
3 Terms and Definitions	
3.1 General terms and definitions	
3.2 Final assembly of switchgear and control equipment	
3.3 Components of final assembly	
3.4 Switchgear	
3.5 Components of switchgear	
3.6 Operation	
3.7 Characteristic parameters	
4 Normal and special conditions of use	
5 Rated	
5.1 General	
5.2 Rated voltage (U_r)	
5.3 Rated insulation level (U_d , U_p , U_s)	
5.4 Rated frequency (f_r)	
5.5 Rated continuous current (I_r)	
5.6 Rated short-time withstand current (I_k)	
5.7 Rated peak withstand current (I_p)	
5.8 Rated short-circuit duration (t_k)	
5.9 Rated supply voltage of auxiliary and control circuits (U_a)	
5.10 Rated frequency of auxiliary and control circuit supply voltage	
5.11 Rated pressure of compressed air source for controllable pressure systems	
5.12 Rated filling pressure/level for insulation and/or opening and closing	
5.101 Rated short-circuit point closing current (I_{ma})	
5.102 Classification of short-circuit making ability of earthing switches	
5.103 Rated contact area	
5.104 Rated terminal static mechanical load	
5.105 Classification of mechanical life of isolating switches	
5.106 Classification of mechanical life of earthing switches	

- 5.107 Rated ice thickness
- 5.108 Rating of bus switching current of isolating switch
- 5.109 Classification and rating of earthing switch switching induced current capability
- 5.110 Classification and rating of isolating switch's ability to switch capacitive current
- 5.111 Rating of the isolating switch's ability to switch small inductive currents
- 6 Design and Structure
 - 6.1 Requirements for liquids in isolating and earthing switches
 - 6.2 Requirements for gases in disconnectors and earthing switches
 - 6.3 Grounding of isolating switches and earthing switches
 - 6.4 Auxiliary and control equipment and circuits
 - 6.5 Power operation
 - 6.6 Energy storage operation
 - 6.7 Operations that do not rely on non-locking (operations that do not rely on manpower or power)
 - 6.8 Human-operated drives
 - 6.9 Trip unit operation
 - 6.10 Pressure/Level Indication
 - 6.11 Nameplate
 - 6.12 Interlocking device
 - 6.13 Position indication
 - 6.14 Degree of protection provided by the enclosure
 - 6.15 Creepage distance of outdoor insulators
 - 6.16 Gas and vacuum sealing
 - 6.17 Hydraulic seals
 - 6.18 Fire (flammability)
 - 6.19 Electromagnetic compatibility (EMC)
 - 6.20 X-ray emission
 - 6.21 Corrosion
 - 6.22 Filling pressure/level for insulation and/or opening and closing, operation
- 6.101 Special requirements for earthing switches
- 6.102 Requirements for the isolation break of the isolating switch
- 6.103 Mechanical strength
- 6.104 Operation of isolating switches and earthing switches - location of movable contact system and its indication and signaling devices
- 6.105 Maximum force for human operation (with or without dependence)
- 6.106 Dimensional tolerance

6.107 Earthing switches with the ability to make short-circuit currents

7 Type test

7.1 General

7.2 Insulation test

7.3 Radio interference voltage test (RIV)

7.4 Loop resistance measurement

7.5 Continuous current test

7.6 Short-time withstand current and peak withstand current tests

7.7 Protection level verification

7.8 Sealing test

7.9 Electromagnetic compatibility test (EMC)

7.10 Additional tests of auxiliary and control circuits

7.11 X-ray test of vacuum interrupter

7.101 Grounding switch short-circuit closing ability test

7.102 Operational and mechanical life tests

7.103 Operation under severe freezing conditions

7.104 Low and high temperature tests

7.105 Verification test for correct function of position indicating device

7.106 Test of bus switching current of isolating switch

7.107 Earthing switch opening and closing induced current test

7.108 Isolating switch switching capacitive current test

7.109 Isolating switch opening and closing small inductive current test

8 Factory test

8.1 General

8.2 Insulation test of main circuit

8.3 Testing of auxiliary and control loops

8.4 Measurement of main circuit resistance

8.5 Sealing test

8.6 Design inspection and appearance inspection

8.101 Mechanical operation test

8.102 Verification of ground function

9 Guidelines for Selection of Isolating Switches and Grounding Switches

9.1 General

9.2 Selection of rating

9.3 Cable interface

9.4 Sustained or temporary overload caused by changes in operating conditions	
9.5 Environmental aspects	
10 Information provided with inquiries, bids and orders (informative)	
10.1 Overview	
10.2 Information provided with inquiries and orders	
10.3 Information provided with the tender documents	
11 Transport, storage, installation, operation and maintenance rules	
11.1 Overview	
11.2 Conditions for transportation, storage and installation	
11.3 Installation	
11.4 Run	
11.5 Maintenance	
12 Security	
12.1 Overview	
12.2 Manufacturer's precautions	
12.3 Precautions for users	
13 Impact of products on the environment	
Appendix A (informative) This document is compared with the regulation number of IEC 62271-102:2022	
Appendix B (informative) Technical differences between this document and IEC 62271-102:2022 and their reasons	
Appendix C (informative) Rated insulation level of isolating switch for neutral point grounding of power transformer	
Appendix D (informative) Required switching current capabilities of isolating switches and grounding switches	
Appendix E (Normative) Tolerance of test parameters for type testing	
Appendix F (informative) Extension of type test validity	
Appendix G (informative) Test voltage for the most unfavorable insulation position (minimum temporary electrical gap) when the earthing switch is operated	
Appendix H (Normative) Alternative test methods for short-circuit current closing test	
Reference	
Single-phase test arrangement	
Single-phase test arrangement	
Single-phase test arrangement	