

ICS 29.080.99

CCS K 49



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

GB/T 11032-2020

Replacing GB/T 11032-2010

Metal-oxide surge arresters without gaps for a. c. systems

Issued on: December 14, 2020

Implemented on: July 1, 2021

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

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Marking and classification	12
4:1 Lightning arrester mark	12
4:2 Lightning arrester classification	12
5 Standard ratings and operating conditions	13
5:1 Standard rated voltage	13
5:2 Standard rated frequency	13
5:3 Standard nominal discharge current	13
5:4 Operating conditions	13
6 Technical requirements	14
6:1 Insulation resistance	14
6:2 Reference voltage	14
6:3 Residual pressure	14
6:4 Partial discharge	15
6:5 Sealing performance	15
6:6 Current distribution	15
6:7 Thermal stability	15
6:8 Long-term stability	15
6:9 Thermal characteristics	15
6:10 Repeated charge transfer tolerance	15
6:11 Operating load	16
6:12 Power frequency voltage withstand time characteristics	16
6:13 Short circuit performance	16
6:14 Disconnecter	16
6:15 Internal pressure equalizing parts	17
6:16 Mechanical load	17
6:17 Electromagnetic compatibility	17
6:18 End of life	17
6:19 Lightning impulse discharge capacity	18
6:20 Continuous current	18

6:21 Leakage current at 0.75 times DC reference voltage	18
6:22 High current impact resistance	18
6:23 Pollution resistance	18
6:24 Packaging, transportation and storage	18
7 Test requirements	18
7:1 Measuring equipment and accuracy	18
7:2 Sample	18
8 Type test (design test)	20
8:1 General	20
8:2 Insulation endurance test	22
8:3 Residual pressure test	23
8:4 Long-term stability test	25
8:5 Repeated charge transfer test	28
8:6 Heat dissipation characteristic test	30
8:7 Action load test	30
8:8 Power frequency voltage withstand time characteristic test	34
8:9 Disconnector test	36
8:10 Short circuit test	38
8:11 Bending load test	45
8:12 Environmental Test	47
8:13 Seal test	48
8:14 Radio interference voltage test	49
8:15 Insulation endurance test of internal components	49
8:16 Test of internal pressure equalizing parts	50
8:17 Continuous current test	51
8:18 Power frequency reference voltage test	51
8:19 DC reference voltage test	52
8:20 Leakage current test at 0.75 times DC reference voltage	52
8:21 Partial discharge test	52
8:22 Current distribution test	52
8:23 Check of unified creepage distance	52
8:24 High current impulse withstand test	52
9 Routine test, acceptance test, periodic test and sampling test	53
9:1 Routine tests	53
9:2 Acceptance test	53

9:3 Periodic tests	54
9:4 Sampling test	54
10 Composite jacket lightning arrester	54
10:1 Scope	55
10:2 Normative references	55
10:3 Terms and definitions	55
10:4 Marking and classification	55
10:5 Standard ratings and operating conditions	55
10:6 Technical requirements	55
10:7 Test requirements	56
10:8 Type test (design test)	56
10:9 Routine test, acceptance test, periodic test and sampling test	76
11 Gas-insulated metal enclosed arrester (GIS arrester)	77
11:1 Scope	77
11:2 Normative references	77
11:3 Terms and definitions	77
11:4 Identification and classification	78
11:5 Standard ratings and operating conditions	78
11:6 Technical requirements	78
11:7 Test requirements	81
11:8 Type test (design test)	81
11:9 Routine test, acceptance test, periodic test and sampling test	87
11:10 Test after site installation	88
12 Separate and uncharged shell arrester	88
12:1 Scope	88
12:2 Normative references	88
12:3 Terms and definitions	88
12:4 Marking and Classification	89
12:5 Standard ratings and operating conditions	89
12:5:4 Normal operating conditions	89
12:6 Technical requirements	89
12:6:13 Short circuit test	89
12:7 Test requirements	89
12:8 Type test (design test)	89
12:9 Routine test, acceptance test, periodic test and sampling test	95

13 Liquid immersion arrester	95
13:1 Scope	95
13:2 Normative references	95
13:3 Terms and definitions	95
13:4 Marking and classification	95
13:5 Standard ratings and operating conditions	95
13:6 Technical requirements	96
13:7 Test requirements	96
13:8 Type test (design test)	96
13:9 Routine test, acceptance test, periodic test and sampling test	102
Appendix A (informative appendix) This standard is compared with the chapter number of IEC 60099-4:2014	103
Appendix B (informative appendix) The main technical differences between this standard and IEC 60099-4:2014 and their reasons	106
Appendix C (Normative Appendix) Abnormal Operating Conditions	117
Appendix D (Normative Appendix) Typical arrester parameters	118
Appendix E (Normative Appendix) Test procedures for determining the lightning impulse discharge capability	125
Appendix F (Normative Appendix) Mechanical Test	127
Appendix G (Normative Appendix) Artificial pollution test of multi-element porcelain-coated metal oxide arresters on thermal stress	133
Appendix H (Informative Appendix) Packaging, Transportation and Storage	146
Appendix I (Normative Appendix) Thermal Equivalence Test	147
Appendix J (Informative Appendix) Aging Test Procedure-Arrhenius Law	149
Appendix K (Normative Appendix) Voltage Distribution Test	150
Appendix L (informative appendix) Guidelines for calculating the voltage distribution of arresters	152

Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009:

This standard replaces GB/T 11032-2010 "AC Gapless Metal Oxide Lightning Arrester", compared with GB/T 11032-2010, the main

The main technical changes are as follows:

--- Added normative reference documents GB/T 3505, GB/T 11604-2015, GB/T 12022, GB/T 16422:1-2006,