

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Surge arresters –**

**Part 6: Surge arresters containing both series and parallel gapped structures –  
System voltage of 52 kV and less**

**Parafoudres –**

**Partie 6: Parafoudres contenant des structures à éclateurs en série et en  
parallèle – Tension de réseau inférieure ou égale à 52 kV**



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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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## Surge arresters –

### Part 6: Surge arresters containing both series and parallel gapped structures – System voltage of 52 kV and less

## Parafoudres –

### Partie 6: Parafoudres contenant des structures à éclateurs en série et en parallèle – Tension de réseau inférieure ou égale à 52 kV

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SURGE ARRESTERS –****Part 6: Surge arresters containing both series and parallel gapped structures – System voltage of 52 kV and less**

## FOREWORD

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International Standard IEC 60099-6 has been prepared by IEC technical committee 37: Surge arresters.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) A new concept of arrester classification and energy withstand testing was introduced: the line discharge classification was replaced by a classification based on repetitive charge transfer rating ( $Q_{rs}$ ) and thermal charge transfer rating ( $Q_{th}$ ). The new concept clearly differentiates between impulse and thermal energy handling capability, which is reflected in the requirements as well as in the related test procedures.

- b) Power-frequency voltage versus time tests – with and without prior duty – were introduced as type tests.
- c) Requirements and tests on disconnectors were added.
- d) Definitions for new terms have been added.
- e) Clause 10 contains particular requirements for polymer-housed surge arresters. These are indicated in the form of replacements, additions or amendments to the original clauses or subclauses concerned.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
37/450/FDIS	37/451/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60099 series, published under the general title *Surge arresters*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

This part of IEC 60099 presents the minimum criteria for the requirements and testing of metal-oxide surge arresters containing gapped structures that are applied to AC power systems with  $U_s$  above 1 kV up to and including 52kV.

Arresters covered by this document can be applied to overhead installations in place of the non-linear type arresters covered in IEC 60099-4.

An accelerated ageing procedure is incorporated in this document to simulate the long-term effects of voltage and temperature on the arrester. This is necessary since during the arrester's service life the gaps and resistor elements will have portions of the system power frequency voltage continuously applied across them.

## **SURGE ARRESTERS –**

### **Part 6: Surge arresters containing both series and parallel gapped structures – System voltage of 52 kV and less**

#### **1 Scope**

This part of IEC 60099 applies to non-linear metal-oxide resistor type surge arresters with spark gaps designed to limit voltage surges on AC power circuits with system voltages  $U_s$  above 1 kV up to and including 52 kV. This document basically applies to all metal-oxide distribution class surge arresters with internal series and/or parallel gaps and housed in either porcelain or polymeric housings.

#### **2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60060-2, *High-voltage test techniques – Part 2: Measuring systems*

IEC 60068-2-11:1981, *Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60071-2:2018, *Insulation co-ordination – Part 2: Application guidelines*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC TS 60815-2, *Selection and dimensioning of high-voltage insulators intended for use in polluted conditions – Part 2: Ceramic and glass insulators for a.c. systems*

IEC 62217, *Polymeric HV insulators for indoor and outdoor use – General definitions, test methods and acceptance criteria*

ISO 4287, *Geometrical Product Specifications (GPS) – Surface texture: Profile method – Terms, definitions and surface texture parameters*

ISO 4892-1, *Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance*

ISO 4892-2, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 4892-3, *Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps*