



SLOVENSKI STANDARD

SIST EN 50187:2001

01-marec-2001

Gas-filled compartments for a.c. switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

Gas-filled compartments for a.c. switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

Gasgefüllte Schotträume für Wechselstrom-Schaltgeräte und -Schaltanlagen mit Bemessungsspannungen über 1 kV bis einschließlich 52 kV

Compartiments sous pression de gaz pour appareillage à courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV

<https://standards.iteh.ai/catalog/standards/sist/dfdb93dd-a98a-4d5b-a0af-220256ed5629/sist-en-50187-2001>

Ta slovenski standard je istoveten z: **EN 50187:1996**

ICS:

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear
-----------	--	---

SIST EN 50187:2001

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50187:2001

<https://standards.iteh.ai/catalog/standards/sist/dfdb93dd-a98a-4d5b-a0af-220256ed5629/sist-en-50187-2001>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50187

August 1996

ICS 29.120.60; 29.260.00

Descriptors: Enclosure, high-voltage switching devices, high-voltage metal-enclosed switchgear and controlgear, pressurized enclosure, gas-filled compartments for rated voltages above 1 kV and up to and including 52 kV

English version

Gas-filled compartments for a.c. switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

Compartiments sous pression de gaz pour appareillage à courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV

Gasgefüllte Schotträume für Wechselstrom-Schaltgeräte und -Schaltanlagen mit Nennspannungen über 1 kV bis einschließlich 52 kV

ITEH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50187:2001

<https://standards.iteh.ai/catalog/standards/sist/dfdb93dd-a98a-4d5b-a0af-220256ed5629/sist-en-50187-2001>

This European Standard was approved by CENELEC on 1995-11-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 17C, High-voltage enclosed switchgear and controlgear.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50187 on 1995-11-28.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-12-01

This European Standard is based on the general specifications given in EN 60298:1996 which are however not sufficient to satisfy the conditions for the service allowance of pressurized high-voltage switchgear and controlgear.

These specifications are appropriate for pressurized high-voltage switchgear enclosures allowing an economic production without sacrificing aspects of safety. For unusual shapes dictated by electrical conditions they permit the verification of sound design by proof tests instead of calculations.

For the time being reference can only be made to published European and international standards as far as they are appropriate for the purpose of production of enclosures to be used in gas-filled switchgear and controlgear.

The present European Standard has been established as an international specification for the design, construction, testing and certification of pressurized enclosures used in high-voltage switchgear and controlgear. This standard follows to that extent also article 2 of the Directive 76/767/EEC.

National deviations from this European Standard are listed in annex A (informative).



Contents

	Page
Introduction	4
1 Scope	5
2 Normative references	6
3 Definitions	7
4 Materials	7
5 Design	8
6 Manufacture and workmanship	10
7 Inspection and testing	10
8 Pressure relief devices	11
9 Certification and marking	12
Annex A (informative) A-deviations	14

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 50187:2001
<https://standards.iteh.ai/catalog/standards/sist/dfdb93dd-a98a-4d5b-a0af-220256ed5629/sist-en-50187-2001>

Introduction

This standard covers the requirements for the design, construction, testing, inspection and certification of gas-filled compartments for use in AC switchgear and controlgear or for associated gas-filled equipment. Special consideration is given to these compartments for the following reasons:-

- a) The compartments form the containment of electrical equipment, thus their shape is determined by electrical rather than mechanical considerations.
- b) The equipment is operated by competent persons (operators) only.
- c) As the thorough drying of the inert, non-corrosive gas-filling medium is fundamental to the satisfactory operation of the electrical equipment it is checked at the original pressurisation and periodically if applicable. For this reasons no internal corrosion allowance is required on the wall thickness of these compartments.
- d) The compartments are subjected to only small fluctuations of pressure as the gas-filling density shall be maintained within close limits to ensure satisfactory insulating and arc-quenching properties. Therefore, the compartments are not liable to fatigue due to pressure cycling.
- e) The operating pressure is relatively low.

For the foregoing reasons, and to ensure the minimum disturbance hence reducing the risk of moisture and dust entering the compartments which would prevent correct electrical operation of the switchgear, no pressure tests shall be carried out after installation and before placing in service and no periodic inspection of the compartment interiors or pressure tests shall be carried out after the equipment is placed in service.

1 Scope

1.1 Type of equipment

This standard applies to compartments pressurized at a maximum pressure of 3 bar (gauge) and with a maximum product pressure x volume of 2000 bar litres with inert gases, for example sulphur hexafluoride or nitrogen or a mixture of such gases, used in indoor or outdoor installations of AC switchgear and controlgear with rated voltages above 1 kV up to and including 52 kV where the gas is used principally for its dielectric and/or arc-quenching properties.

The compartments comprise parts of electrical equipment not necessarily limited to the following examples:

- Circuit breakers
- Switch disconnectors
- Disconnectors
- Earthing switches
- Current transformers
- Voltage transformers
- Busbars and connections
- Cable terminations

Gas filled compartments having a design pressure exceeding 3 bar (gauge) or a product pressure x volume exceeding 2000 bar litres shall be designed, manufactured and tested in accordance with one or a combination of the following:

- EN 50052
- EN 50064
- EN 50068
- EN 50069

[SIST EN 50187:2001
https://standards.iteh.ai/catalog/standards/sist/dfdb93dd-a98a-4d5b-a0af-220256ed5629/sist-en-50187-2001](https://standards.iteh.ai/catalog/standards/sist/dfdb93dd-a98a-4d5b-a0af-220256ed5629/sist-en-50187-2001)

1.2 Quality assurance

The switchgear manufacturer shall be responsible for achieving and maintaining a consistent and adequate quality of product.

Sufficient examinations shall be made by the compartment manufacturer to ensure that the materials, production and testing comply in all respects with the requirements of this standard and ISO 3834. Inspection by user's inspectors shall not absolve the switchgear manufacturer from this responsibility to exercise such quality assurance procedures as to ensure that the requirements and intent of this standard are satisfied.

NOTE:- Reference should be made to the EN ISO 9000 series of standards for quality systems.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 50052	1996	Cast aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear
EN 50064	1989	Wrought aluminium and aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear
EN 50068	1991	Wrought steel enclosures for gas-filled high-voltage switchgear and controlgear
EN 50069	1991	Welded composite enclosures of cast and wrought aluminium alloys for gas-filled high-voltage switchgear and controlgear
EN 60298	1996	A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV (IEC 298:1990 + corrigendum April 1995 + A1:1994) SIST EN 50187:2001
EN ISO 9000 series		Quality management and quality assurance standards (ISO 9000 series) https://standards.iteh.ai/catalog/standards/sist/161b931d-a98a-4d5b-a0af-20256ed5629/sist-en-50187-2001
ISO 3834	1994	Quality requirements for welding
EN 45020	1993	General terms and their definitions concerning standardization and related activities (ISO/IEC Guide 2:1991)

3 Definitions

3.1 Compartment

A part of gas-filled switchgear and controlgear retaining the insulating gas under the prescribed conditions necessary to maintain safely the rated insulation level, protecting the equipment against external influences.

3.2 Manufacturer

Individual or body finally responsible for designing and producing the compartment. In this standard this is the switchgear manufacturer, even when the compartment is produced by a sub-manufacturer.

3.3 Design pressure (of a compartment)

Pressure (gauge) used to determine the design of the compartment. It is at least the upper limit of pressure reached within the compartment at the design temperature.

3.4 Design temperature (of a compartment)

Highest temperature reached by the compartment which can occur under service conditions. This is generally the upper limit of ambient air temperature increased by the temperature rise due to the flow of rated normal current.

SIST EN 50187:2001

NOTE:- Solar radiation and other relevant operating conditions shall be taken into account when they have a significant effect on the temperature of the compartment and on the mechanical properties of some materials. Similarly, the effects of low temperatures on the properties of some materials shall be considered.

3.5 Filling pressure (of a compartment)

The pressure in bar (gauge) assigned by the manufacturer referred to atmospheric air conditions of 20 °C and 1 013 hPa at which the gas-filled compartment is filled before being put into service.

4 Materials

Any suitable materials or combination of materials may be used for the manufacture of compartments, typical examples are:

- Wrought mild steel
- Wrought austenitic stainless steel
- Wrought aluminium
- Cast aluminium
- Cast resin

The properties of the materials should be taken from the applicable standards.

The materials properties shall be verified either by a certificate from the supplier or tests carried out by the switchgear manufacturer.