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SVENSKA ELEKTROTEKNISKA NORMER, SEN

SVENSK STANDARD SS-EN 50 064

Handläggande organ	Fastställd	Utgåva	Ingår i
SEK, SVENSKA ELEKTRISKA KOMMISSIONEN	1992-12-02	1	SEK Översikt 17C

Registrering
Reg 436 21 54

Gasisolerade metallkapslade ställverk — Kapslingar av plastiskt bearbetat aluminium

Wrought aluminium and aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear

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Wrought aluminium and aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear

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ENGLISH VERSION

WROUGHT ALUMINIUM AND ALUMINIUM ALLOY ENCLOSURES FOR GAS-FILLED HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR

Enveloppes en aluminium et alliage d'aluminium corroyé pour l'appareillage à haute tension sous pression de gaz

Kapselungen aus Aluminium und Aluminium-Knetlegierungen für gasgefüllte Hochspannungs-Schaltgeräte und -Schaltanlagen

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CENELEC

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

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FOREWORD

The European Standard has been prepared by CENELEC Technical Committee 17 C: High-voltage enclosed switchgear and controlgear.

The following dates are applicable:

- latest date of announcement of the EN at national level	(doa)	1989-12-15
- date of latest publication of a new harmonized national standard	(dop)	1990-06-15
- date of withdrawal of conflicting national standards	(dow)	1990-06-15

This document forms a supplement to EN 50 052 (1986) "Cast aluminium alloy enclosures for gas-filled high-voltage switchgear and controlgear", concerning enclosures for the same type of switchgear and controlgear but made of wrought aluminium and aluminium alloys. It is based on the general specifications given in IEC Publication 517 (1986) 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 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. Nevertheless this European Standard makes use of many internationally well acknowledged calculation rules and the Technical Committee will in addition pursue the progress in standardization in CEN/TC 121 and ISO/TC 44 on welding and allied processes.

For the time being reference can only be made to published 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 EN has been established as an international specification for the design, construction, testing, inspection 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.

The European Standard contains three normative technical annexes:

Annex A: Elastic analysis of the stress distribution in dished ends due to internal pressure.
Annex B: Welding procedure and welder performance tests.
Annex C: Sample of record form
and an informative annex:
Annex D: National deviations

List of standards referred to in this standard:

IEC 517:1986 Gas-insulated metal-enclosed switchgear for rated voltages of 72,5 kV and above.

ISO 6213:1983 Welding; Items to be considered to ensure quality in welding structures.

ISO 3134:1985 Light metals and their alloys; Terms and definitions;
Part 1: Materials
Part 3: Wrought products
Part 5: Methods of processing and treatment

ISO 6520:1982 Classification of imperfections in metallic fusion welds, with explanations.

ISO/R 373:1964 General principles for fatigue testing of metals.

ISO/IEC Guide 2:1986 General terms and their definitions concerning standardization and related activities.

Wrought aluminium and aluminium alloy enclosures
for gas-filled high-voltage switchgear and controlgear

C O N T E N T S

1 Introduction

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

(a) The enclosures usually form the containment of electrical equipment, thus their shape is determined by electrical rather than mechanical considerations.

(b) The enclosures are installed in restricted access areas and the equipment is operated by experts and instructed persons 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 periodically checked. For this reason, no internal corrosion allowance is required on the wall thickness of these enclosures.

(d) The enclosures 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 enclosures 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 enclosures 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 enclosure interiors or pressure tests shall be carried out after the equipment is placed in service.

2 Scope and field of application

2.1 Type of equipment

This standard applies to fusion welded wrought aluminium and aluminium alloy enclosures pressurized with dry air, inert gases, for example sulphur hexafluoride or nitrogen or a mixture of such gases, used in indoor or outdoor installations of high-voltage switchgear and controlgear with rated voltages of 72,5 kV and above, where the gas is used principally for its dielectric and/or arc-quenching properties.

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

Circuit-breakers

Switch-disconnectors

Disconnectors

Earthing switches

Current transformers

Voltage transformers

Surge arrestors

Busbars and connections

The scope covers also pressurized components such as the centre-chamber of live tank switchgear and controlgear, gas-insulated current transformers,etc.

2.2 Production

The production of the enclosures shall be in accordance with documented welding procedures which shall be carried out by well trained and supervised welding personnel. Where International Standards (ISO or CEN) are not available National Standards may be used.

NOTE
This standard will be revised as soon as possible when ISO or CEN standards covering the various aspects are available.

2.3 Quality assurance

It is the intention of this standard that the switchgear manufacturer shall be responsible for achieving and maintaining a consistent and adequate quality of product.

Sufficient examinations shall be made by the enclosure manufacturer to ensure that the materials, production and testing comply in all respects with the requirements of this standard and ISO 6213:1983. Inspection by the user's inspectors shall not absolve the switchgear manufacturer from his responsibility to exercise such quality assurance procedures as to ensure that the requirements and the intent of this standard are satisfied.

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