

Empty enclosures for low-voltage switchgear and controlgear assemblies — General requirements

The European Standard EN 62208:2003 has the status of a
British Standard

ICS 29.130.20

National foreword

This British Standard is the official English language version of EN 62208:2003. It is identical with IEC 62208:2002. It supersedes BS EN 50298:1999 which will be withdrawn on 1 February 2005.

The UK participation in its preparation was entrusted by Technical Committee PEL/17, Switchgear controlgear and HV-LV co-ordination, to Subcommittee PEL/17/3, Low voltage switchgear and controlgear assemblies, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 23 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 16 February 2004

© BSI 16 February 2004

ISBN 0 580 43366 8

English version

**Empty enclosures for low-voltage switchgear and controlgear assemblies –
General requirements
(IEC 62208:2002)**

Enveloppes vides destinées aux ensembles
d'appareillage à basse tension –
Règles générales
(CEI 62208:2002)

Leergehäuse für Niederspannungs-
Schaltgerätekombinationen –
Allgemeine Anforderungen
(IEC 62208:2002)

This European Standard was approved by CENELEC on 2003-12-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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

The text of the International Standard IEC 62208:2002, prepared by SC 17D, Low-voltage switchgear and controlgear assemblies, of IEC TC 17, Switchgear and controlgear, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 62208 on 2003-12-01 without any modification.

This European Standard supersedes EN 50298:1998.

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) 2004-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2006-12-01

Annexes designated "normative" are part of the body of the standard.

In this standard, Annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62208:2002 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60417	NOTE	Harmonized in EN 60417 series (not modified).
IEC 61000-5-7	NOTE	Harmonized as EN 61000-5-7:2001 (not modified).

CONTENTS

1	Scope	4
2	Normative references	4
3	Terms and definitions	5
4	Classification.....	6
5	EMC requirements	7
6	Information to be given regarding the enclosure.....	7
6.1	Marking	7
6.2	Documentation	7
7	Service conditions	7
7.1	Normal service conditions	8
7.2	Special service conditions	8
7.3	Conditions during transport and storage	9
8	Design and construction	9
8.1	General	9
8.2	Dimensions	9
8.3	Mounting arrangements	9
8.4	Static loads	9
8.5	Lifting and transport support	10
8.6	Access to the interior of the enclosure	10
8.7	Protective circuit.....	10
8.8	Dielectric strength.....	10
8.9	Degree of protection (IK code)	10
8.10	Degree of protection (IP code)	11
9	Type tests	11
9.1	General conditions of tests	11
9.2	Marking	12
9.3	Static loads	12
9.4	Lifting	12
9.5	Verification of axial loads of metal inserts	12
9.6	Verification of degree of protection against external mechanical impacts (IK code).....	13
9.7	Verification of degree of protection (IP code).....	14
9.8	Properties of insulating materials	15
9.9	Verification of dielectric strength	17
9.10	Verification of the continuity of the protective circuit	18
9.11	Verification of resistance to weathering	18
9.12	Verification of resistance to corrosion	19
	Annex ZA (normative) Normative references to international publications with their corresponding European publications	21
	Bibliography	23
	Figure 1 – Ball-pressure apparatus.....	20
	Table 1 – Number of samples to be tested and order of test per sample	11
	Table 2 – Axial loads of metal inserts	13
	Table 3 – Relation between IK code and impact energy	14

EMPTY ENCLOSURES FOR LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES – GENERAL REQUIREMENTS

1 Scope

This International Standard applies to empty enclosures, prior to the incorporation of switchgear and controlgear components by the user, as supplied by the enclosure manufacturer.

This standard specifies definitions, classifications, characteristics and test requirements of enclosures to be used as part of switchgear and controlgear assemblies in accordance with the IEC 60439 series, the rated voltage of which does not exceed 1 000 V a.c. at frequencies not exceeding 1 000 Hz, or 1 500 V d.c. and suitable for general use for either indoor or outdoor applications.

This standard does not apply to enclosures, which are covered by other specific products standards (e.g. IEC 60670).

Compliance with the safety requirements of the applicable product standard is the responsibility of the final assembly manufacturer.

NOTE This standard may serve as a basis for other technical committees.

2 Normative references

The following referenced documents are indispensable for the application 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 60068-2-2:1974, *Basic environmental testing procedures – Part 2: Tests – Tests B: Dry heat*
Amendment 2 (1994)

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

IEC 60068-2-30:1980, *Basic environmental testing procedures – Part 2: Tests – Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle)*
Amendment 1 (1985)

IEC 60068-2-75:1997, *Environmental testing – Part 2: Tests – Test Eh: Hammer tests*

IEC 60439 (all parts), *Low-voltage switchgear and controlgear assemblies*

IEC 60439-1:1999, *Low-voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*

IEC 60439-5:1996, *Low-voltage switchgear and controlgear assemblies – Part 5: Particular requirements for assemblies intended to be installed outdoors in public places – Cable distribution cabinets (CDCs) for power distribution in networks*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP code)*

IEC 60695-2-10:2000, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60695-2-11: 2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test methods for end-products*

IEC 60890:1987, *A method of temperature-rise assessment by extrapolation for partially type-tested assemblies (PTTA) of low-voltage switchgear and controlgear*
Amendment 1 (1995)

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

ISO 178:2001, *Plastics – Determination of flexural properties*

ISO 179 (all parts), *Plastics – Determination of Charpy impact strength*

ISO 2409:1992, *Paints and varnishes – Cross-cut test*

ISO 4628-3:1982, *Paints and varnishes – Evaluation of degradation of paint coatings – Designation of intensity, quantity and size of common types of defect – Part 3: Designation of degree of rusting*

ISO 4892-2:1994, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc sources*

ISO 11469:2000, *Plastics – Generic identification and marking of plastic products*

3 Terms and definitions

For the purposes of this International Standard, the following definitions apply.

3.1

empty enclosure

enclosure intended for support and installation of electrical equipment, whose internal space provides suitable protection against external influences as well as a specified degree of protection against approach to or contact with live parts and against contact with moving parts

NOTE Throughout this standard, the word enclosure is used for empty enclosure.

3.2

protected space

internal space or portion of the internal space of the enclosure as specified by the manufacturer intended for the mounting of switchgear and controlgear for which the specified protection is provided by the enclosure

3.3

cover

external part of the enclosure

3.4

door

hinged or sliding cover

3.5

mounting plate

separate internal accessory of the enclosure intended for the mounting of electrical components

3.6

cable gland plate

removable accessory of the enclosure, intended for securing and sealing of cables, conductors and conduits at their point of entry

3.7

removable cover

cover which is designed for closing an opening in the external enclosure and which can be removed for carrying out certain operations and maintenance work.

NOTE A lid is considered as a removable cover.

3.8

enclosure manufacturer

manufacturer of an enclosure or the vendor who resells under his own responsibility

3.9

box

enclosure, generally of small dimensions and, in principle, intended to be mounted on a vertical plane

3.10

cubicle

empty enclosure, generally of large dimensions, and in principle of the floor standing type, which may comprise several sections, sub-sections or compartments

NOTE Enclosures with an irregular shape, such as a desk, are considered cubicles for testing purposes.

4 Classification

Enclosures are classified according to

a) the type of material:

- insulating
- metallic
- combination of insulating and metallic

b) method of fixing:

- floor standing
- wall mounting
- flush mounting
- pole mounting

c) the intended location:

- outdoor
- indoor

d) the degree of protection:

- IP code, according to IEC 60529
- IK code, according to IEC 62262

e) rated insulation voltage (for enclosures made of insulating materials)