

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Low-voltage electrical installations –
Part 7-706: Requirements for special installations or locations – Conducting
locations with restricted movement**

**Installations électriques basse tension –
Partie 7-706: Exigences pour les installations ou emplacements spéciaux –
Enceintes conductrices exigües**



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REDLINE VERSION

VERSION REDLINE



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

**Part 7-706: Requirements for special installations or locations –
Conducting locations with restricted movement**

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60364-7-706 edition 2.1 contains the second edition (2005-10) [documents 64/1478/FDIS and 64/1493/RVD] and its amendment 1 (2019-09) [documents 64/2380/FDIS and 64/2394/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International standard IEC 60364-7-706 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This second edition constitutes a technical revision.

The main changes with respect to the previous edition are as follows:

- only SELV and electrical separation are allowed for all portable equipment not just measuring equipment.
- PELV is allowed for the supply to fixed equipment, and the use of class II equipment or equivalent is allowed to supply fixed equipment if additional protection is provided by an RCD.

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

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

IEC 60364 consists of the following parts, under the general title *Low-voltage electrical installations*:

Part 1: Fundamental principles, assessment of general characteristics, definitions

Part 2: Void

Part 3: Void

Part 4: Protection for safety

Part 5: Selection and erection of electrical equipment

Part 6: Verification

Part 7: Requirements for special installations or locations

The reader's attention is drawn to the fact that Annex A lists all of the "in-some-country" clauses on differing practices of a permanent or less permanent nature relating to the subject of this standard.

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

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INTRODUCTION

~~The requirements of this part of IEC 60364 supplement, modify or replace certain of the general requirements of the other parts of IEC 60364.~~

~~The clause numbering of part 706 follows the pattern and corresponding references of IEC 60364. The numbers following the particular number of part 706 are those of the corresponding parts, or clauses of IEC 60364.~~

~~The absence of reference to a part, a clause or a subclause means that the corresponding general requirements are applicable.~~

For the purpose of this part of IEC 60364 (IEC 60364-7-706) the requirements of the general Parts 1 to 6 and Parts 8 of IEC 60364 apply.

The IEC 60364-7-7XX parts of IEC 60364 contain particular requirements for special installations or locations which are based on the requirements of the general parts of IEC 60364 (IEC 60364-1 to IEC 60364-6 and IEC 60364-8). These IEC 60364-7-7XX parts are considered in conjunction with the requirements of the general parts.

The particular requirements of this part of IEC 60364 supplement, modify or replace certain of the requirements of the general parts of IEC 60364 being valid at the time of publication of this part. The absence of reference to the exclusion of a part or a clause of a general part means that the corresponding clauses of the general part are applicable (undated reference).

Requirements of other 7XX parts being relevant for installations covered by this part also apply. This part may therefore also supplement, modify or replace certain of these requirements valid at the time of publication of this part.

The clause numbering of this part follows the pattern and corresponding references of IEC 60364. The numbers following the particular number of this part are those of the corresponding parts, or clauses of the other parts of the IEC 60364 series, valid at the time of publication of this part, as indicated in the normative references of this document (dated reference).

If requirements or explanations additional to those of the other parts of the IEC 60364 series are needed, the numbering of such items appears as 706.101, 706.102, 706.103, etc.

In the case where new or amended general parts with modified numbering were published after this part was issued, the clause numbers referring to a general part in this Part 706 may no longer align with the latest edition of the general part. Dated references should be observed.

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 7-706: Requirements for special installations or locations – Conducting locations with restricted movement

706.1 Scope

~~The particular requirements of this part apply to fixed equipment in conducting locations where movement of persons is restricted by the location, and to supplies for portable equipment for use in such locations.~~

~~A conducting location with restricted movement is comprised mainly of metallic or other conductive surrounding parts, within which it is likely that a person will come in contact through a substantial portion of his body with the metallic or other conductive surrounding parts and where the possibility of interrupting this contact is limited.~~

~~The particular requirements of this part do not apply to location which allows a person freedom of bodily movement to work, enter, and leave the location without physical constraint.~~

~~NOTE For installation and use of arc welding equipment, see IEC 62081 TS.~~

The particular requirements of this part of IEC 60364 apply to:

- fixed equipment within conducting locations with restricted movement; and
- supplies to equipment used within conducting locations with restricted movement.

706.2 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 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*
IEC 60364-4-41:2005/AMD1:2017

706.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

706.3.1

conducting location with restricted movement

location surrounded by mainly extraneous-conductive-parts and where contact through one or more points on a person's body with the extraneous-conductive-parts is likely and where there is limited possibility of interrupting this contact

706.4 Protection for safety

706.41 Protection against electric shock

706.410.3 ~~Application of measures of protection against electric shock~~ General requirements

The following requirement is added:

706.410.3.1.6 In conducting locations with restricted movement the following protective measures apply to circuits supplying the following current-using equipment:

a) For the supply to hand-held tools and portable equipment:

- SELV (Clause 411.1), or
- electrical separation (Clause 413.5) subject to only one item of equipment being connected to a secondary winding of the isolating transformer.

NOTE An isolating transformer may have several secondary windings.

b) For the supply to handlamps:

- SELV (Clause 411.1).

NOTE A fluorescent luminaire with built-in step-up transformer with electrically separated windings transformer supplied at SELV is equally permitted.

c) For the supply to fixed equipment:

- automatic disconnection of the supply (Clause 413.1) with supplementary equipotential bonding (Subclause 413.1.6) that shall connect exposed-conductive-parts of fixed equipment and the conductive parts of the location, or

- SELV (Clause 411.1), or

- PELV (Clause 411.1) where equipotential bonding shall be provided between all exposed-conductive-parts, all extraneous-conductive-parts inside the conducting location with restrictive movement, and the connection of the PELV system to earth, or

NOTE 1 In France, PELV is not allowed in conducting locations with restricted movement.

- electrical separation (Clause 413.5) subject to one item of equipment being connected to a secondary winding of the isolating transformer, or

- by use of Class II equipment or equipment having equivalent insulation (Clause 413.2) provided the supplying circuits are protected by additional protection by the use of residual current devices (Clause 412.5) with a rated residual operating current not exceeding 30 mA.

NOTE 2 A fluorescent luminaire with built-in step-up transformer with electrically separated windings and supplied at SELV is equally permitted.

NOTE 3 In Switzerland, the use of hand-held tools, luminaires and portable equipment for tank cleaning services are permitted under conditions others than mentioned above. These conditions are defined in a law. (Weisung des Eidgenössischen Starkstrominspektorates STI 608.0702 d).

706.410.3.3

Replace the existing text with the following:

For the supply to mobile equipment, one of the following protective measures shall be applied:

- SELV in accordance with IEC 60364-4-41:2005, Clause 414, or
- electrical separation for the supply of one item of current using equipment in accordance with IEC 60364-4-41:2005, Clause 413.

NOTE An isolating transformer can have several secondary windings.

For the supply to fixed equipment, one of the following protective measures shall be applied:

- automatic disconnection of the supply in accordance with IEC 60364-4-41:2005 and IEC 60364-4-41:2005/AMD1:2017, Clause 411 together with additional protection by supplementary equipotential bonding in accordance with IEC 60364-4-41:2005 and IEC 60364-4-41:2005/AMD1:2017, 415.2, or
- SELV in accordance with IEC 60364-4-41:2005, Clause 414, or
- PELV in accordance with IEC 60364-4-41:2005, Clause 414, together with equipotential bonding between all exposed-conductive-parts and extraneous-conductive-parts and the connection of the PELV system to earth, or
- electrical separation for the supply of one item of current using equipment in accordance with IEC 60364-4-41:2005, Clause 413, or
- double or reinforced insulation in accordance with IEC 60364-4-41:2005 and IEC 60364-4-41:2005/AMD1:2017, Clause 412 together with additional protection by the use of a residual current device (RCD) with a rated residual operating current not exceeding 30 mA.

706.410.3.5

Replace the requirement with the following:

The protective measures of obstacles and placing out of reach in accordance with IEC 60364-4-41:2005, Annex B shall not be used.

706.411 Protection against both direct and indirect contact

The following requirements and note are added:

706.411.1.2 Sources for SELV and PELV

NOTE In Italy, PELV is not admitted.

706.411.1.2.6 Sources for SELV and PELV shall be situated outside the conducting location with restrictive movement, unless they are part of the fixed installation within the conducting location with restricted movement as provided by item c) of 706.410.3.1.6.

706.411.1.4 Requirements for unearthed circuits (SELV)

706.411.1.4.3 Basic protection (protection against direct contact) in accordance with 411.1.4.3 shall be provided, irrespective of the nominal voltage of the SELV circuits.

706.411.1.5 Requirements for earthed circuits (PELV)

706.411.1.5.2 Basic protection (protection against direct contact) in accordance with 411.1.5.1 shall be provided, irrespective of the nominal voltage of the PELV circuits.

706.412 Protection against direct contact

The following requirements are added:

706.412.3 Obstacles

Protection by means of obstacles (Clause 412.3) is not permitted.

706.412.4 Placing out of reach

Protection by placing out of reach (Clause 412.4) is not permitted.

706.413 ~~Protection against indirect contact~~ Protective measure: electrical separation

The following requirements are added:

Only circuits and the protective measures for supplying equipment indicated in 706.410.3.1.6 are permitted.

706.413.1.2.3 Equipotential bonding and functional earth

If a functional earth is required for certain equipment, for example measuring and control apparatus, equipotential bonding shall be provided between all exposed-conductive-parts, extraneous-conductive-parts inside the conducting location with restrictive movement and the functional earth.

706.413.3 Requirements for fault protection

706.413.3.2

Add the following requirement:

The source shall be situated outside the conducting location with restrictive movement, unless the source is part of the fixed installation within the location.

706.413.5 Electrical separation

NOTE In Ireland, the measure “electrical separation” is not permitted in such locations.

706.413.5.1.1 The source with protective separation in accordance with 413.5.1.1 shall be situated outside the conducting location with restrictive movement, unless the source is part of the fixed installation within the conducting location with restrictive movement.

706.414 Protective measure: extra-low-voltage provided by SELV and PELV

706.414.3 Sources for SELV and PELV

The following requirements are added:

706.414.3.101 Sources for SELV and PELV shall be situated outside the conducting location with restrictive movement, unless they are part of the fixed installation within the conducting location with restrictive movement.

706.414.4 Requirements for SELV and PELV circuits

706.414.4.5

Replace the first paragraph and first two dashed items with the following:

If the nominal voltage exceeds 25 V AC or 60 V DC, or if the equipment is immersed, basic protection shall be provided for SELV and PELV circuits by:

- insulation in accordance with IEC 60634-4-41:2005, Clause A.1, or
- barriers or enclosures in accordance with IEC 60634-4-41:2005, Clause A.2.

706.415 Additional protection

706.415.2 Additional protection: supplementary protective equipotential bonding

706.415.2.1

The following requirement is added:

Where functional earthing is required, supplementary equipotential bonding shall be provided between all exposed-conductive-parts, extraneous-conductive-parts and the terminals for functional earthing.

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