BS EN 61534-22:2014

BSI Standards Publication

Powertrack systems —

Part 22: Particular requirements for powertrack systems intended for on floor or underfloor installation

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National foreword

This British Standard is the UK implementation of EN 61534-22:2014. It is identical to IEC 61534-22:2014. It supersedes BS EN 61534-22:2009, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/213, Cable management.

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

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

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Powertrack systems - Part 22: Particular requirements for powertrack systems intended for onfloor or underfloor installation (IEC 61534-22:2014)

Systèmes de conducteurs préfabriqués - Partie 22: Exigences particulières pour les systèmes de conducteurs préfabriqués destinés au montage sur le sol ou sous le sol (CEI 61534-22:2014)

Stromschienensysteme - Teil 22: Besondere Anforderungen für Stromschienensysteme für Fußbodeninstallationen (IEC 61534-22:2014)

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

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Foreword

The text of document 23A/702/FDIS, future edition 2 of IEC 61534-22, prepared by SC 23A "Cable management systems", of IEC/TC 23 "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61534-22:2014.

The following dates are fixed:

– latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-04-24
– latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-07-24

This document supersedes EN 61534-22:2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 61534-22:2014 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 61534-1 + A1	2011 2014	Powertrack systems - Part 1: General requirements	EN 61534-1 + A1	2011 2014

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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POWERTRACK SYSTEMS –

Part 22: Particular requirements for powertrack systems intended for onfloor or underfloor installation

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61534-22 has been prepared by subcommittee 23A: Cable management systems, of IEC Technical Committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 2009. This edition constitutes a technical revision.

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

- Clauses 18 to 22 have been adapted to IEC 61534-1:2011 and include short-circuit test requirements;
- addition of a new (500 N) classification for the resistance to traffic load applied to small surface areas on a flushfloor service unit;

- addition of a new classification for the non-automatic closing of the lid on flushfloor service units and appropriate tests;
- addition of tests for floor service units declared for use when a floor is wet-treated.

The text of this standard is based on the following documents:

FDIS	Report on voting
23A/702/FDIS	23A/708/RVD

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

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

This standard is to be used in conjunction with IEC 61534-1:2011, *Powertrack systems – Part 1: General requirements*.

This Part 22 supplements or modifies the corresponding clauses of IEC 61534-1. Where a particular clause or subclause of IEC 61534-1:2011 is not mentioned in this Part 22, that clause or subclause applies as far as is reasonable. Where this Part 22 states "*addition*" or "*replacement*", the relevant text of IEC 61534-1:2011 is to be adapted accordingly.

Subclauses, tables and figures which are in addition to those in IEC 61534-1:2011 are numbered starting with 101.

A list of all parts of IEC 61534 series, published under the general title *Powertrack systems,* can be found on the IEC website.

The following differences exist in the countries indicated below:

Subclause 7.105.2: In the United Kingdom, this classification is not permitted.

The committee has decided that the contents of this publication 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

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

POWERTRACK SYSTEMS –

Part 22: Particular requirements for powertrack systems intended for onfloor or underfloor installation

1 Scope

Clause 1 of IEC 61534-1:2011 and IEC 61534-1:2011/AMD1:2014 is applicable except as follows:

1.1 *Addition:*

This part of IEC 61534 specifies the particular requirements and tests for PT systems intended for mounting on, or under the floor level and floor service units which are mounted on the floor, under the floor or flush with the floor.

NOTE 1 Types and applications are shown in Figures AA.1a, AA.1b and AA.2

NOTE 2 Flushfloor PT systems, with the exception of flushfloor service units, are not covered by this standard.

2 Normative references

Clause 2 of IEC 61534-1:2011 is applicable except as follows:

Addition:

IEC 61534-1:2011, *Powertrack systems – Part 1: General requirements*
IEC 61534-1:2011/AMD1:2014

3 Terms and definitions

Clause 3 of IEC 61534-1:2011 and IEC 61534-1:2011/AMD1:2014 is applicable except as follows:

Additional terms and definitions:

3.101
underfloor PT system
PT system whose components, except flushfloor service units, are intended for installation beneath the finished floor and in normal use are not exposed to traffic loads

Examples are shown in Figures AA.1a and AA.1b

3.102
onfloor PT system
PT system whose components are mounted on the floor surface

An example is shown in Figure AA.2.

3.103
finished floor
floor which carries the traffic load and which may be made of concrete, wood, or the like and which may or may not be completed with floor covering material such as carpet, tile, paint, parquet or similar means

3.104
apparatus mounting device
system component to accommodate electrical apparatus, for example switches, socket-outlets, circuit-breakers

3.105
floor service unit
system component used with a floor system and intended to accommodate one or more electrical apparatus such as switches, socket-outlets, circuit-breakers either directly or by use of mounting devices

3.106
flushfloor service unit
floor service unit that is flush with the finished floor when the unit is not in use'

3.107
in-use floor service unit
floor service unit which has cables and/or cords connected to external electrical appliances

3.108
not in-use floor service unit
floor service unit which has no cables and/or cords connected to external electrical appliances

4 General requirements

Clause 4 of IEC 61534-1:2011 is applicable.

5 General notes on tests

Clause 5 of IEC 61534-1:2011 is applicable.

6 Ratings

Clause 6 of IEC 61534-1:2011 is applicable.

7 Classification

Clause 7 of IEC 61534-1:2011 is applicable except as follows:

Replacement:

7.1 According to resistance to impact for installation and application

7.1.1 PT system for 5 J impact

7.1.2 PT system for 20 J impact

Additional subclauses:

7.101 According to floor treatment

7.101.1 Dry-treatment of floor

7.101.2 Wet-treatment of floor for not in-use floor service unit

7.101.3 Wet-treatment of floor for in-use floor service unit

7.102 According to the intended location

7.102.1 Underfloor PT system

7.102.2 Onfloor PT system

7.103 According to resistance to traffic load applied to small surface area on a flushfloor service unit

7.103.1 500 N

7.103.2 750 N

7.103.3 1 000 N

7.103.4 1 500 N

7.103.5 2 000 N

7.103.6 2 500 N

7.103.7 3 000 N

7.104 Optional classification according to resistance to traffic load applied to large surface area on a flushfloor service unit

7.104.1 2 000 N

7.104.2 3 000 N

7.104.3 5 000 N

7.104.4 10 000 N

7.104.5 15 000 N

7.105 According to the type of lid used on flushfloor service units

7.105.1 Automatic closing of the lid

7.105.2 Non-automatic closing of the lid

NOTE In the United Kingdom, classification 7.105.2 is not permitted.

8 Marking and documentation

Clause 8 of IEC 61534-1:2011 and IEC 61534-1:2011/AMD1:2014 is applicable.

9 Construction

Clause 9 of IEC 61534-1:2011 is applicable except as follows:

Additional subclauses:

9.101 Underfloor powertrack system components shall withstand external loads during transport and installation but are not subjected to traffic loads in normal use.

Compliance is checked by the tests specified in 14.101.2.

9.102 Onfloor powertrack system components shall withstand external loads.

Compliance is checked by the tests specified in 14.101.3.

9.103 Flushfloor service units shall withstand traffic loads in accordance with 7.103 and 7.104.

Compliance is checked by the tests specified in 14.101.4.

9.104 Lids of flush floor service units shall be so designed that in normal use they cannot be detached without an intentional action and also resist movement or unintentional opening when subject to external load.

Compliance is checked by inspection and the test of 14.101.4 and 14.101.5 as appropriate.

Lids of flush floor service units declared according to 7.105.1 shall be so designed that in normal use they will close automatically.

Compliance is checked by inspection and manual test.

9.105 Floor service units declared according to 7.101.2 and 7.101.3 shall avoid water coming into contact with insulated conductors and live parts during wet-treatment of floor by one or a combination of the following methods which may vary within the system:

– method 1: ensuring by design that water does not come into contact with insulated conductors and live parts when the water level is 10 mm above the upper level of the floor covering;
– method 2: providing an IP rating not less than IPX4;
– method 3: providing manufacturer's instructions which require that insulated conductors and live parts are positioned not less than 10 mm above the upper level of the floor covering.

For method 1, compliance is checked by measurement. For method 2, compliance is checked by the test of 21.2.3.101. For method 3, compliance is checked by inspection.

9.106 Flushfloor service units shall be so constructed that when installed with the lid closed they shall not present a trip hazard. Any protrusion above the finished floor shall not be greater than 4 mm, or 8 mm in the case of a chamfered step with an angle not exceeding 45º with the horizontal surface. When the service unit is in use this requirement does not apply.

Compliance is checked by inspection.

10 Clearances, creepage distances and solid insulation

Clause 10 of IEC 61534-1:2011 is applicable.

11 Protection against electric shock

Clause 11 of IEC 61534-1:2011 is applicable except as follows:

Additional subclause:

11.1.101 The minimum IP rating for powertrack system components accessible to ordinary persons during normal use shall be IP 3XD. This requirement does not apply to accessories.

12 Terminals and terminations

Clause 12 of IEC 61534-1:2011 is applicable.

13 Screws, current-carrying parts and connections

Clause 13 of IEC 61534-1:2011 is applicable.

14 Mechanical strength

Clause 14 of IEC 61534-1:2011 is applicable except as follows:

14.2 Impact test

Delete 14.2.

Additional subclauses:

14.101 External mechanical load test

14.101.1 General

Underfloor and onfloor PT systems and PT flushfloor service units, shall have sufficient mechanical strength against external mechanical loads likely to occur during normal use:

– underfloor PT system components by the test of 14.101.2;
– onfloor PT system components by the tests of 14.101.3;
– flushfloor service units by the test of 14.101.4 and 14.101.5 as appropriate.

Any part for temporary use only during the installation phase does not need to comply with these tests but may be included for the test to allow compliance of other parts.

14.101.2 Load test for underfloor powertrack system components

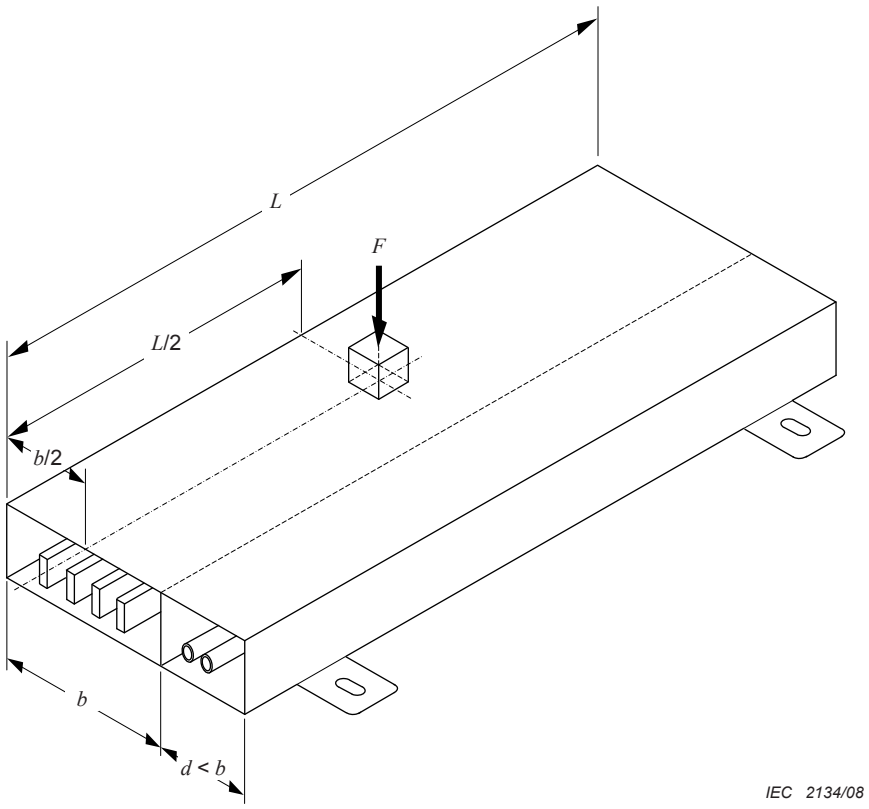
14.101.2.1 General

Powertrack (PT) systems including tap-off units shall have sufficient mechanical strength against external loads likely to occur during installation and use.

14.101.2.2 Powertrack

The test shall be performed on a sample consisting of two lengths of powertrack each with a minimum length of 0,5 m which are connected together with the necessary connectors and with a supply connector at each end of the sample.

The sample is positioned on a horizontal rigid support. A steel cube of (50 ± 0,5) mm with an edge radius of approximately 1 mm is placed centrally on the joint. In the case of multi-compartment powertrack whose partition walls provide support, the middle of the largest compartment is selected, see Figure 101.



Key

b width of the largest compartment

d width of the smallest compartment

L length of sample

F applied vertical force

Figure 101 – External load test

A vertical force of (750 ± 10) N is gradually applied over (60 ± 1) s and maintained for a further (120 ± 5) s centrally to the cube.

During the test, there shall be no deformation that impairs electrical safety.

In case of doubt, the sample shall conform to Clause 10 and 11.1.1.1.

After the test, the sample shall show no signs of damage, nor any cracks visible to normal or corrected vision without additional magnification.

After removal of the external load, the continuity of the protective circuit shall remain unaffected.

A current of (25 ± 1) A a.c. having a nominal frequency of 50 Hz or 60 Hz supplied by a source with a no-load voltage not exceeding 12 V shall be passed between the earthing terminals at each end of the sample. Measurement of the voltage drop shall be made within 120 s after the initiation of the current flow. The impedance per metre, calculated from the measurement of the voltage drop between the two supply connectors, shall not exceed the value declared by the manufacturer or 0,05 Ω/m whichever is the lower.

14.101.2.3 Tap-off units

A tap-off unit shall be centrally installed on a length of powertrack which has a minimum length of 0,5 m.

The powertrack is positioned on a horizontal rigid support. A steel cube of (50 ± 0,5) mm with an edge radius of approximately 1 mm is placed centrally on the tap-off unit.

A vertical force of (750 ± 10) N is gradually applied over (60 ± 1) s and maintained for a further (120 ± 5) s centrally to the cube.

During the test, there shall be no deformation that impairs electrical safety.

In case of doubt, the sample shall conform to Clause 10 and 11.1.1.1.

After the test, the sample shall show no signs of damage, nor any cracks visible to normal or corrected vision without additional magnification.

After removal of the external load, the continuity of the protective circuit shall remain unaffected.

A current of (25 ± 1) A a.c. having a nominal frequency of 50 Hz or 60 Hz supplied by a source with a no-load voltage not exceeding 12 V shall be passed between the earthing terminal or contact of the tap-off unit and the nearest point on the protective earth busbar with the tap-off unit fully engaged as in normal use. Measurement of the voltage drop shall be made within 120 s after the initiation of the current flow. The impedance calculated from the measurement of the voltage drop between the two points stated shall not exceed the value declared by the manufacturer or 0,05 Ω/m whichever is the lower.

14.101.3 Load test for onfloor PT system components

14.101.3.1 General

PT systems including tap-off units shall have sufficient mechanical strength against external loads likely to occur during installation and use.

14.101.3.2 Powertrack

The test shall be performed on a sample consisting of two lengths of powertrack each with a minimum length of 0,5 m which are connected together with the necessary connectors and with a supply connector at each end of the sample.

The sample is positioned on a horizontal rigid support. A steel cube of (50 ± 0,5) mm with an edge radius of approximately 1 mm is placed centrally on the joint. In the case of multi-compartment powertrack whose partition walls provide support, the middle of the largest compartment is selected, see Figure 101.

A vertical force of (1 000 ± 10) N is gradually applied over (60 ± 1) s and maintained for a further (120 ± 5) s centrally to the cube.

During the test, there shall be no deformation that impairs electrical safety.

In case of doubt, the sample shall conform to Clause 10 and 11.1.1.1.

After the test, the sample shall show no signs of damage, nor any cracks visible to normal or corrected vision without additional magnification.

After removal of the external load, the continuity of the protective circuit shall remain unaffected.

A current of (25 ± 1) A a.c. having a nominal frequency of 50 Hz or 60 Hz supplied by a source with a no-load voltage not exceeding 12 V shall be passed between the earthing terminals at each end of the sample. Measurement of the voltage drop shall be made within 120 s after the initiation of the current flow. The impedance per metre, calculated from the measurement of the voltage drop between the two supply connectors, shall not exceed the value declared by the manufacturer or 0,05 Ω/m whichever is the lower.

14.101.3.3 Tap-off units

A tap-off unit shall be centrally installed on a length of powertrack which has a minimum length of 0,5 m.

The powertrack is positioned on a horizontal rigid support. A steel cube of (50 ± 0,5) mm with an edge radius of approximately 1 mm is placed centrally on the tap-off unit.

A vertical force of (1 000 ± 10) N is gradually applied over (60 ± 1) s and maintained for a further (120 ± 5) s centrally to the cube.

During the test, there shall be no deformation that impairs electrical safety.

In case of doubt, the sample shall conform to Clause 10 and 11.1.1.1

After the test, the sample shall show no signs of damage, nor any cracks visible to normal or corrected vision without additional magnification.

After removal of the external load, the continuity of the protective circuit shall remain unaffected.

A current of (25 ± 1) A a.c. having a nominal frequency of 50 Hz or 60 Hz supplied by a source with a no-load voltage not exceeding 12 V shall be passed between the earthing terminal or contact of the tap-off unit and the nearest point on the protective earth busbar with the tap-off unit fully engaged as in normal use. Measurement of the voltage drop shall be made within 120 s after the initiation of the current flow. The impedance calculated from the measurement of the voltage drop between the two points stated shall not exceed the value declared by the manufacturer or 0,05 Ω/m whichever is the lower.

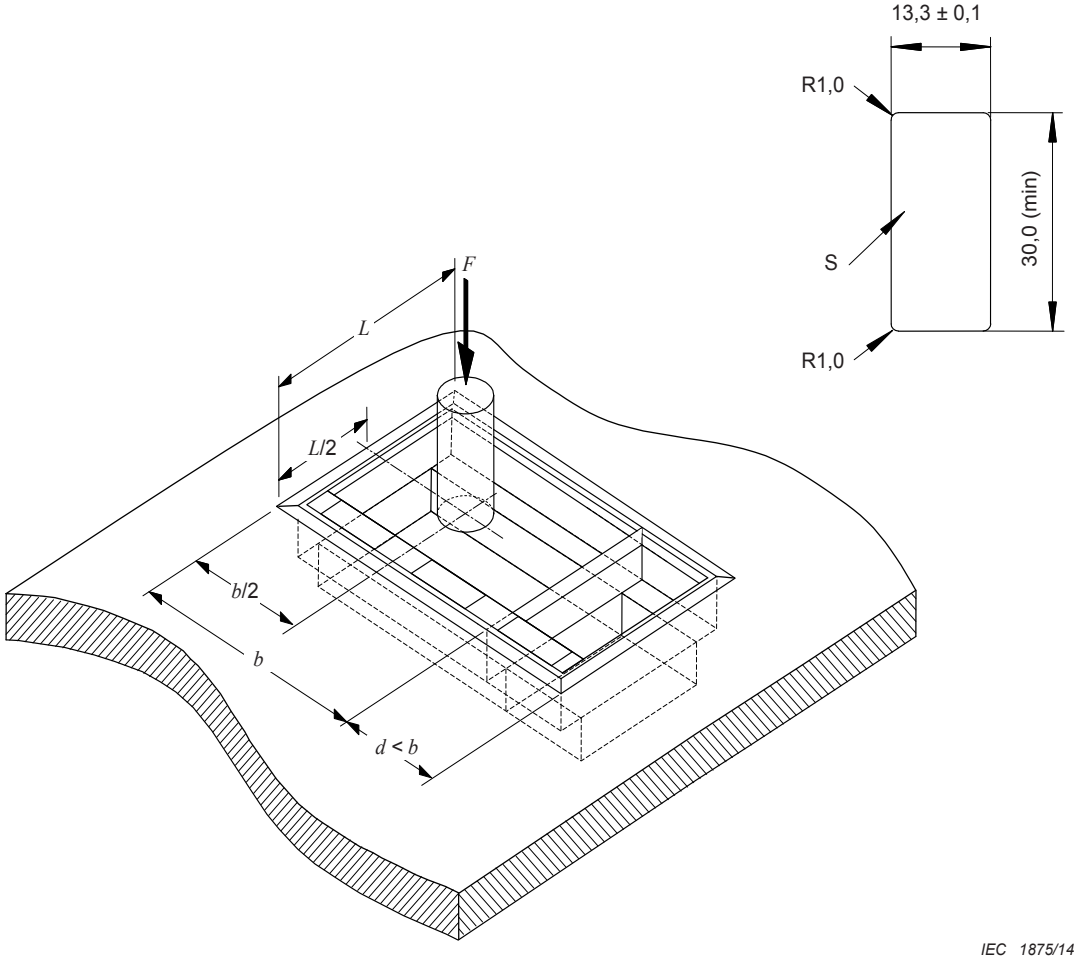
14.101.4 Traffic load test for flushfloor service units as declared in 7.103

The test is carried out on an assembly prepared according to the manufacturer's instructions.

Additional provision may be included to simulate the influence of the floor material on the sides of the product. Other system components may be included, if necessary, to prevent movement.

The surface of the sample which can be exposed to traffic is loaded with the force declared according to 7.103.

A vertical force is applied through a steel cylinder of (13,3 ± 0,1) mm diameter with an edge radius of 1 mm providing a contact surface of approximately 1 cm^2 with a minimum length of 30 mm as shown in Figure 102.



Dimensions in millimetres

Key

b width of the largest compartment

d width of the smallest compartment

L length of the flushfloor service unit

F applied vertical force on the roller

S detail of steel test cylinder

Figure 102 – Traffic load test for flushfloor service units applied to a small surface area

The cylinder is placed approximately in the middle of the length of the sample and in the most unfavourable position in the width of the sample. In the case of a multi-compartment floor service unit whose partition(s) provide support, the middle of the largest compartment is selected.

To allow for settlement of the sample, a pre-load of 50 N is applied and then the measurement apparatus is calibrated to zero.

The force is gradually increased up to the value declared according to 7.103 over (15 ± 5) s and maintained for (60 ± 1) s.

During the test the samples shall show no deflection greater than 6 mm and lids shall resist movement or unintentional opening. After the tests, the samples shall show no signs of disintegration, nor shall there be any crack visible to normal or corrected vision without additional magnification. One minute after the load has been removed, there shall be no permanent deformation exceeding 3 mm and no permanent deformation that would reduce the classified IP rating or impair safety; in case of doubt the sample shall conform to the tests of 21.2.

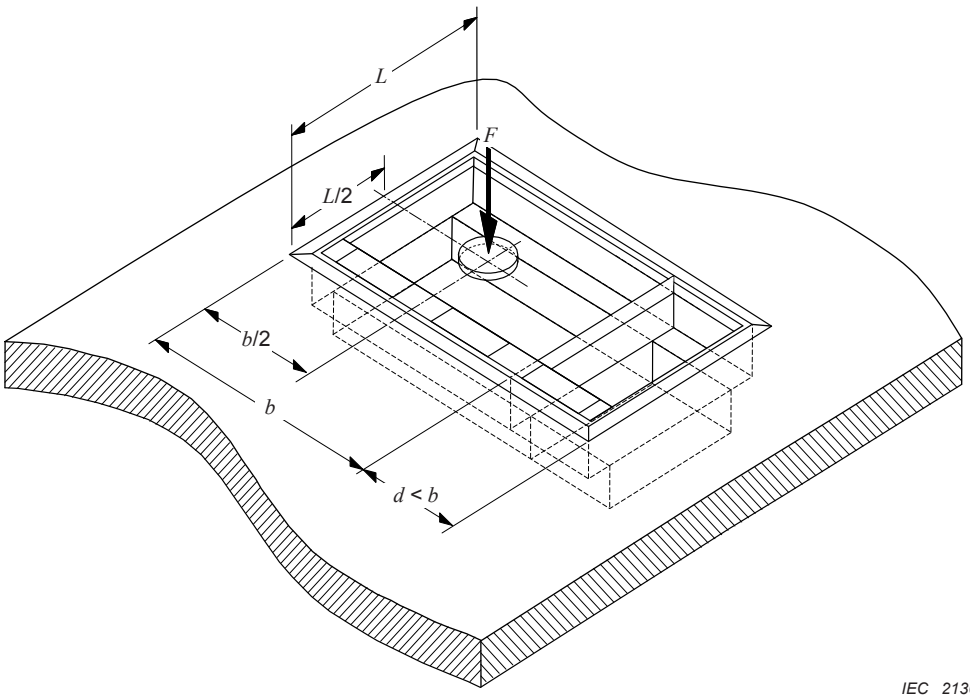
14.101.5 Traffic load test for flushfloor service units as declared in 7.104

The test is carried out on an assembly prepared according to the manufacturer's instructions.

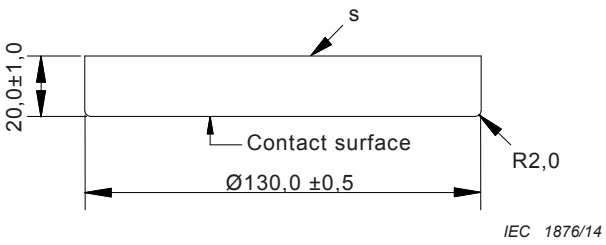
Additional provisions may be included to simulate the influence of the floor material on the sides of the product. Other system components may be included, if necessary, to prevent movement.

The surface of the sample which can be exposed to traffic is loaded with the force declared according to 7.104.

The force is vertically applied through a circular steel plate with a (130 ± 0,5) mm diameter and a thickness of (20 ± 1) mm with an edge radius of approximately 2 mm as shown in Figure 103.



Dimensions in millimetres



Key

b width of the largest compartment

d width of the smallest compartment

L length of the flushfloor service unit

F applied vertical force on the circular steel plate '*S*'

S circular steel plate

Figure 103 – Traffic load test for flushfloor service units applied to a large surface area

The centre of the circular plate is placed half way along the length of the sample and centrally over the accessible region considered to be the weakest.

The force is gradually applied over (60 ± 1) s and maintained for a further (120 ± 5) s.

During the test, the samples shall show no deflection greater than 6 mm and lids shall resist movement or unintentional opening. After the test, the sample shall show no signs of disintegration, nor shall there be any crack visible to normal or corrected vision without additional magnification. One minute after the load has been removed, there shall be no permanent deformation exceeding 3 mm and no permanent deformation that would reduce the classified IP rating or impair safety; in case of doubt the sample shall conform to the tests of 21.2.

14.101.6 Fixing test for apparatus mounting

14.101.6.1 Apparatus mounting of socket-outlets

Apparatus mounting devices shall withstand pull and pressure forces likely to occur during normal use.

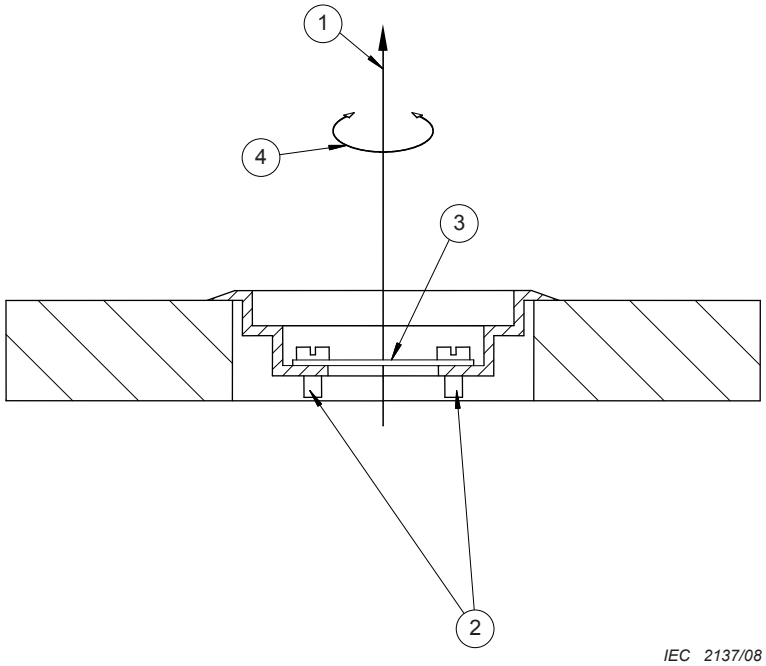
Compliance is checked by the following test.

The relevant PT system components are installed according to the manufacturer's instructions.

An apparatus-mounting device is installed as in normal use.

Non-metallic systems shall be tested at (60 ± 2) °C.

As shown in Figure 104, a pull and a press force of 1,5 times the maximum plug withdrawal force, taken from the relevant standard, is applied through the steel bracket to the apparatus mounting device for (60 ± 5) s in the most unfavourable position and direction within an angle of 45° to 90° from the mounting plane of the apparatus.



Key

1 pull force
2 fixing device for apparatus
3 steel bracket
4 torque

Figure 104 – Test arrangement for fixing apparatus mounting device according to 14.101.6.1

Immediately after this test, the apparatus mounting device is subjected to a torque of (3,0 ± 0,2) Nm, clockwise and anticlockwise. The duration of the test is (60 ± 5) s in each direction. During the test, the apparatus mounting device shall not turn more than an angle of 15° from its initial position.

After the test, neither the steel bracket nor the apparatus mounting device shall become detached and electrical safety shall not be impaired. The floor service unit shall remain firmly fixed to its location.

14.101.6.2 Apparatus mounting other than socket-outlets.

For other apparatus, only a pull and press force test is carried out according to the test of 14.101.6.1 with a force of (50 ± 2) N.

14.101.7 Onfloor PT systems with tap-off units

In normal use, the construction of the tap-off unit shall be such as to prevent unintentional disconnection from the powertrack or live parts becoming accessible.

Compliance is checked by the following test.

The tap-off unit is inserted as in normal use 10 times and withdrawn 10 times from the tap-off outlet with the PT system installed in normal use as declared by the manufacturer.

The tap-off unit is inserted once more into the tap-off outlet as in normal use as declared by the manufacturer. A pull force of (30 ± 1) N is applied for (60 ± 5) s to the tap-off unit using the connected cable/cord in a direction parallel to the normal removal direction of the tap-off unit.

The tap-off unit shall not become disconnected from the powertrack and live parts shall not become accessible when tested according to 11.1.1.1.

15 Insulation resistance test and dielectric strength test

Clause 15 of IEC 61534-1:2011 is applicable.

16 Normal operation

Clause 16 of IEC 61534-1:2011 is applicable.

17 Temperature rise

Clause 17 of IEC 61534-1:2011 is applicable.

18 Short-circuit protection and short-circuit withstand strength

Clause 18 of IEC 61534-1:2011 is applicable.

19 Resistance to heat

Clause 19 of IEC 61534-1:2011 is applicable.

20 Fire hazard

Clause 20 of IEC 61534-1:2011 is applicable.

21 External influences

Clause 21 of IEC 61534-1:2011 is applicable except as follows:

Additional subclause:

21.2.3.101 Protection against ingress of water for wet treatment

PT system classified according to 7.101.2 or 7.101.3 shall be protected against harmful ingress of water with a degree of protection not less than IP X4 according to IEC 60529, when in normal use.

A typical PT system including at least one joint shall be set up as in normal use in accordance with the manufacturer's instructions on a test floor that is flat and not less than 100 mm around the sample. Components of the system not included in the test shall be tested separately and assembled in a manner representative of service conditions.

Compliance is checked by the following test.

The assembly is tested in accordance with the appropriate test of IEC 60529 using the spray nozzle.

Fixing screws and nuts are tightened by applying torque according to the manufacturer's instruction. If the manufacturer does not specify torque, the values of Table 5 apply.

The assembly shall have passed the test if the electrical safety is not impaired and the quantity of water in mm^3 is considered as non-hazardous when the volume of water which has penetrated the assembly, excluding floor service units, is less than 0,5 % of the volume of each part of the assembly under test. For floor service units the quantity of water in mm^3 is considered as non-hazardous when the volume of water which has penetrated the floor service unit is less than 0,5 % times the internal volume of the floor service unit.

22 Electromagnetic compatibility

Clause 22 of IEC 61534-1:2011 is applicable.

Annexes

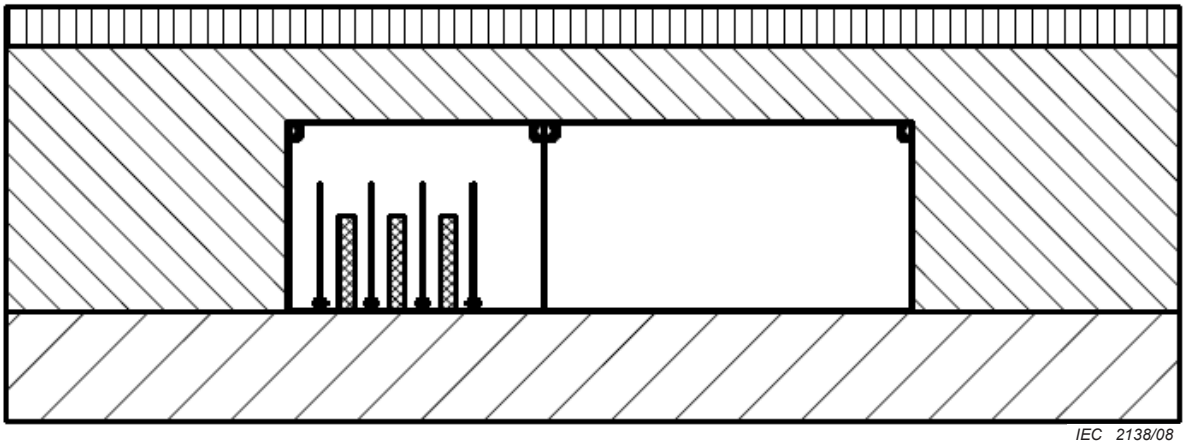
The annexes of IEC 61534-1:2011 and IEC 61534-1:2011/AMD1:2014 are applicable except as follows:

Additional annexes:

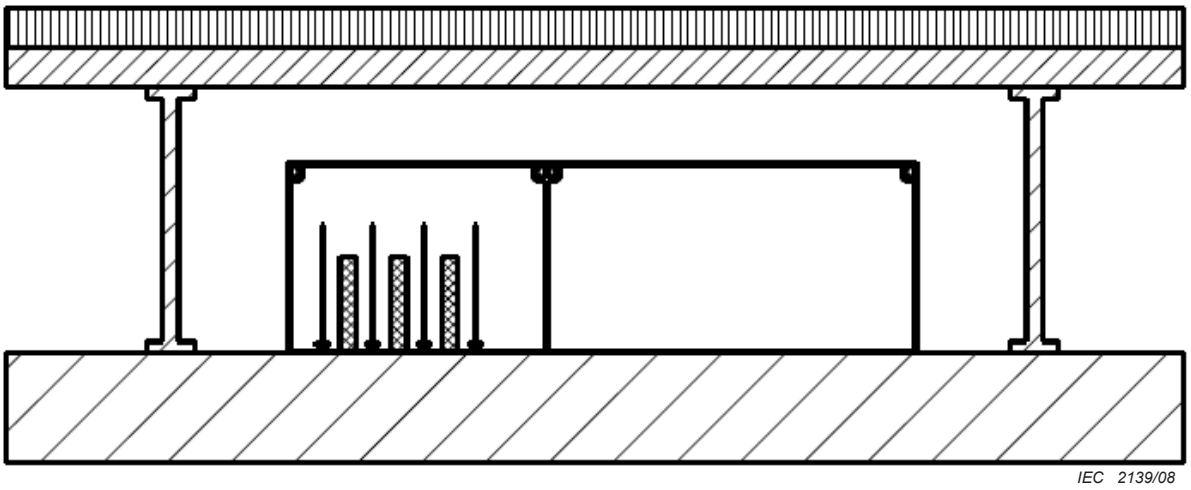
Annex AA
(informative)

Illustrations of underfloor and onfloor installations

Figure AA.1 shows examples of underfloor installations and Figure AA.2 shows an example of an onfloor installation.



a) Example of installation underfloor embedded



b) Example of installation under a raised floor

Figure AA.1 – Illustrations of underfloor installations

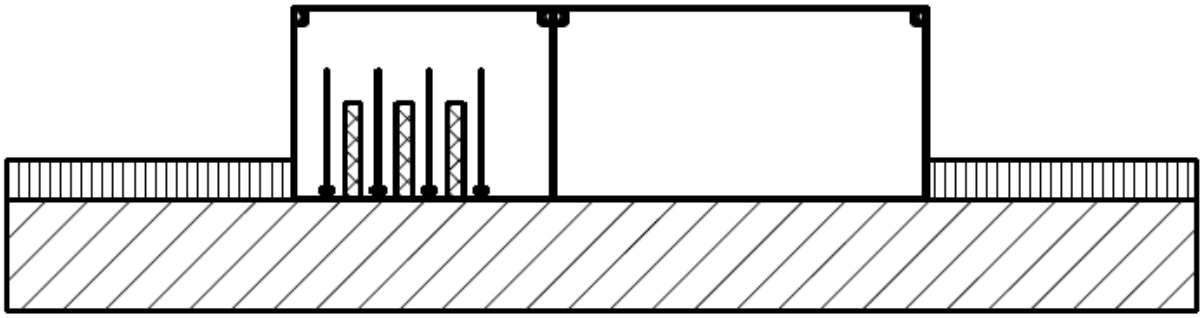


Figure AA.2 – Example of installation onfloor

Annex BB
(normative)

Additional test requirements for PT systems already complying with IEC 61534-22: 2009

PT systems already complying with IEC 61534-22:2009 only require testing in accordance with the following clauses if appropriate:

- **7.105.2** Non-automatic closing of the lid
- **9.105** Floor service units declared according to 7.101.2 and 7.101.3
- **14.101.5** Traffic load test for flushfloor service units as declared in 7.104
- **18** Short-circuit protection and short-circuit withstand strength

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