

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Cable cleats for electrical installations

Brides de câbles pour installations électriques

IEC 61914:2015
<https://standards.iteh.ai/catalog/standards/sist/665d4792-4b3a-44c5-96fe-27b9be5cf0b1/iec-61914-2015>

ITIH STANDARD PREVIEW
(standards.iteh.ai)



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2015 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Cable cleats for electrical installations

Brides de câbles pour installations électriques

STANDARD PREVIEW
(standards.iteh.ai)
IEC 61914:2015
<https://standards.iteh.ai/catalog/standards/sist/665d4792-4b3a-44c5-96fe-27b9be5cf0b1/iec-61914-2015>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.20

ISBN 978-2-8322-3012-1

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	4
1 Scope	6
2 Normative references	6
3 Terms, definitions and abbreviations	6
4 General requirements	8
5 General notes on tests	8
6 Classification	9
6.1 According to material	9
6.1.1 Metallic	9
6.1.2 Non-metallic	9
6.1.3 Composite	9
6.2 According to maximum and minimum temperature	9
6.3 According to resistance to impact	10
6.3.1 Very light	10
6.3.2 Light	10
6.3.3 Medium	10
6.3.4 Heavy	10
6.3.5 Very heavy	10
6.4 According to type of retention or resistance to electromechanical forces or both	10
6.4.1 General	10
6.4.2 With lateral retention	10
6.4.3 With axial retention	10
6.4.4 Resistant to electromechanical forces, withstanding one short circuit	10
6.4.5 Resistant to electromechanical forces, withstanding more than one short circuit	10
6.5 According to environmental influences	10
6.5.1 Resistant to ultraviolet light for non-metallic and composite components	10
6.5.2 Resistant to corrosion for metallic and composite components	10
7 Marking and documentation	10
7.1 Marking	10
7.2 Durability and legibility	11
7.3 Documentation	11
8 Construction	11
9 Mechanical properties	11
9.1 Requirements	11
9.2 Impact test	12
9.3 Lateral load test	14
9.4 Axial load test	15
9.5 Test for resistance to electromechanical force	17
9.5.1 General	17
9.5.2 For cable cleats and intermediate restraints classified in 6.4.4	19
9.5.3 For cable cleats and intermediate restraints classified in 6.4.5	19
10 Fire hazards	19
10.1 Flame propagation	19

10.2	Smoke emission.....	20
10.3	Smoke toxicity	20
11	Environmental influences.....	21
11.1	Resistance to ultraviolet light	21
11.2	Resistance to corrosion	21
11.2.1	General	21
11.2.2	Salt spray test	22
12	Electromagnetic compatibility	22
12.1	Electromagnetic emission	22
12.2	Inductive heating	22
Annex A (informative) Examples of cable cleats.....		23
Annex B (informative) Calculation of forces caused by short-circuit currents		24
B.1	Characteristics.....	24
B.2	Specification of the test current.....	25
B.3	Calculation of the mechanical forces between conductors.....	25
Bibliography.....		28
Figure 1–	Typical arrangement for impact test	13
Figure 2 –	Typical arrangements for lateral load test.....	15
Figure 3 –	Typical arrangement for axial load test.....	16
Figure 4 –	Typical assemblies for test for resistance to electromechanical force	17
Figure 5 –	Typical arrangement of three cables in trefoil formation	18
Figure 6 –	Typical arrangement of cables in flat formation	18
Figure 7 –	Typical arrangement of the needle-flame test.....	20
Figure B.1 –	Short-circuit current of a far-from-generator short circuit with constant a.c. component.....	24
Figure B.2 –	Short-circuit current of a near-to-generator short circuit with decaying a.c. component.....	25
Figure B.3 –	Two parallel conductors	26
Table 1 –	Maximum temperature for permanent application	9
Table 2 –	Minimum temperature for permanent application	9
Table 3 –	Impact test values	14
Table 4 –	Resistance to corrosion.....	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CABLE CLEATS FOR ELECTRICAL INSTALLATIONS

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61914 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:

- a) Additional declaration and test for lateral load retention depending on cleat mounting orientation with associated new figures;
- b) Additional declaration of the distance between the cable centres in any short-circuit test and associated new figures;
- c) Specification of the cable to be used in short-circuit testing and relaxation of the ambient temperature limits for the test;
- d) Additional requirement to photograph the short-circuit test arrangement before and after the test and to record more complete details of the cable used;

e) Revised parameters for the test of resistance to UV light.

This edition also includes the following editorial changes with respect to the previous edition:

- f) Revised and updated normative references and bibliography;
- g) Editorial clarification of definitions;
- h) Editorial clarification of procedures for selection of test samples and the testing of cleats designed for more than one cable;
- i) Relaxation of some mandrel material requirements;
- j) Clarification of the inspection requirements following a short-circuit test and adding the option of either a.c. or d.c. voltage testing following a second short-circuit;
- k) Clarification that the resistance to corrosion test applies to all types of fixing;
- l) New cleat example illustration;
- m) Limitations of use of the formulae in Annex B added.

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

FDIS	Report on voting
23A/786/FDIS	23A/795/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.

In this standard, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

CABLE CLEATS FOR ELECTRICAL INSTALLATIONS

1 Scope

This International Standard specifies requirements and tests for cable cleats and intermediate restraints used for securing cable in electrical installations. Cable cleats provide resistance to electromechanical forces where declared. This standard includes cable cleats that rely on a mounting surface specified by the manufacturer for axial and/or lateral retention of cables.

This standard does not apply to:

- cable glands;
- cable ties.

2 Normative references

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.

IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

ISO 4287:1997, *Geometrical product specifications (GPS) – Surface texture: Profile method – Terms, definitions and surface texture parameters*

ISO 4892-2:2006, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 9227:2012, *Corrosion tests in artificial atmospheres – Salt spray tests*

3 Terms, definitions and abbreviations

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

3.1

cleat

device designed to provide securing of cables when installed at intervals along the length of cables

Note 1 to entry: A cable cleat is provided with a means of attachment to a mounting surface but does not rely on an unspecified mounting surface for the retention of the cables. Examples of mounting surfaces that may be specified are ladder, tray, strut (see Figure A.8) or rail. Where declared, cable cleats provide resistance to electromechanical forces.

Note 2 to entry: See Figure A.1 to Figure A.9 for some examples of cable cleats. These examples do not limit the use of other cable cleat designs that conform to the requirements of this standard.

3.2**intermediate restraint**

cable retaining device designed to be used with cable cleats, without being attached to the mounting surface, to hold the cables together in order to provide resistance to electromechanical forces

3.3**metallic**

consisting of metal only

3.4**non-metallic**

consisting of non-metallic material only

3.5**composite**

consisting of metallic and non-metallic materials

Note 1 to entry: Fibre reinforced resin materials are not considered to be composite under this definition.

3.6**short-circuit current**

overcurrent resulting from a circuit condition in which the current flows through an abnormal or unintended path of negligible impedance between live conductors, or between a live conductor and an earth, having a difference in potential under normal operating conditions

3.7**peak short-circuit current** i_p

maximum possible instantaneous value of the short-circuit current (see Annex B)

3.8**initial r.m.s. symmetrical short-circuit current** I''_k

r.m.s. value of the a.c. symmetrical component of a short-circuit current, applicable at the instant of the short circuit if the impedance remains at the zero-time value (see Annex B)

3.9**decaying (aperiodic) component of short-circuit current** $i_{d.c.}$

mean value between the top and bottom envelope of a short-circuit current decaying from an initial value to zero (see Annex B)

3.10**steady-state short-circuit current** I_k

r.m.s. value of the short-circuit current which remains after the decay of the transient phenomena (see Annex B)

3.11**trefoil formation**

formation of three cables so laid as to be mutually equidistant

Note 1 to entry: Viewed in cross-section, the lines joining the cable centres form an equilateral triangle (see Figure 5).

Note 2 to entry: The formation is known as “close trefoil” formation when the cables are touching each other.

3.12**flat formation**

formation of a number of cables laid in a plane, usually with equal spacing between adjacent cables (see Figure 6)

3.13**electromechanical forces**

induced forces acting on current-carrying conductors

3.14**retention**

limiting the lateral and/or axial movement of the cable

3.15**securing**

fixing to or from a mounting surface or another product

3.16**environmental influences**

effect of corrosive substances or solar radiation, etc.

4 General requirements

Products covered by this standard shall be so designed and constructed that, when assembled and installed as for normal use according to the manufacturer's instructions, they ensure securing of cables as declared in accordance with Clause 6 and shall not cause damage to the cable.

IEC 61914:2015

Compliance is checked by the relevant tests specified in this standard. <https://standards.iec.ch/96fe-27b9be5cf0b1/iec-61914-2015>

5 General notes on tests

5.1 Tests according to this standard are type tests.

- Products of all sizes shall comply with Clause 8 and 9.1a).
- For the requirements in 9.1b), 9.1c) and 9.1d) where there are a number of cleats in a range, the range is divided into one or more types. In this case, the smallest and the largest size of cleat of each type are tested.
- The test for compliance with 9.1e) is performed on the set of samples selected as defined in 9.5.1.

NOTE For guidance in determining types, cable cleats or intermediate restraints having material, construction characteristics, and classifications according to Clause 6 below, in common, are considered to be the same type.

5.2 Unless otherwise specified, all tests shall be carried out on three new samples of each size selected as specified in 5.1, assembled and installed as for normal use according to the manufacturer's or responsible vendor's instructions. Where a cable cleat is designed to accommodate more than one cable the number, size and shape of the mandrels used in the test shall represent the number, size and shape of the cables for which the cable cleat is intended.

5.3 Tests on non-metallic and composite cleats and intermediate restraints shall not commence earlier than 168 h after manufacture.

5.4 Unless otherwise specified, the tests shall be carried out at an ambient temperature of (23_{-5}^{+5}) °C.

5.5 Compliance with this standard is satisfied if all the applicable test requirements are achieved. If only one of the samples does not satisfy a test due to a manufacturing fault, then that test and any preceding one which may have influenced the results of the test shall be repeated and also the tests which follow shall be made in the same required sequence on another full set of samples, all of which shall comply with the requirements.

The applicant, when submitting the first set of samples, may also submit an additional set of samples, which may be necessary should one sample fail. The test house should then, without further request, test the additional set of samples and should only reject if a further failure occurs. If the additional set of samples is not submitted at the same time, a failure of one sample would entail rejection.

5.6 When toxic or hazardous processes are used, due regard shall be taken of the safety of persons within the test area.

6 Classification

6.1 According to material

6.1.1 Metallic

6.1.2 Non-metallic

6.1.3 Composite

6.2 According to maximum and minimum temperature

Table 1 – Maximum temperature for permanent application

A. Maximum temperature °C
+ 40
+ 60
+ 85
+ 105
+ 120

Table 2 – Minimum temperature for permanent application

B. Minimum temperature °C
+ 5
- 5
- 15
- 25
- 40
- 60

For temperature values above 120 °C and below -60 °C, the manufacturer or responsible vendor may declare temperatures outside the values tabulated above.

6.3 According to resistance to impact

6.3.1 Very light

6.3.2 Light

6.3.3 Medium

6.3.4 Heavy

6.3.5 Very heavy

6.4 According to type of retention or resistance to electromechanical forces or both

6.4.1 General

Manufacturers of cleats shall declare a classification under 6.4.2 and may also declare a classification under 6.4.3. Manufacturers of cleats may also declare a classification under 6.4.4 or 6.4.5.

Manufacturers of intermediate restraints shall declare a classification under 6.4.4 or 6.4.5 in association with cleats.

6.4.2 With lateral retention

6.4.3 With axial retention

NOTE This value is for guidance purposes as it is not possible to replicate cables using mandrels.

6.4.4 Resistant to electromechanical forces, withstanding one short circuit

6.4.5 Resistant to electromechanical forces, withstanding more than one short circuit

NOTE The intent for cable cleats and intermediate restraints classified under 6.4.5 is that after one short circuit application, the cable cleat and intermediate restraints, if used, will continue to perform as designed and tested according to this standard. The physical condition of the cable cleats and intermediate restraints after short circuit application has only been evaluated under laboratory conditions. The continued use of the cable cleats and intermediate restraints, if used, following an actual short circuit incident, is solely at the discretion of the party responsible for the installation.

6.5 According to environmental influences

6.5.1 Resistant to ultraviolet light for non-metallic and composite components

6.5.1.1 Not declared

6.5.1.2 Resistant to ultraviolet light

6.5.2 Resistant to corrosion for metallic and composite components

6.5.2.1 Low

6.5.2.2 High

7 Marking and documentation

7.1 Marking

Each cleat and intermediate restraint shall be marked with

- the manufacturer's or responsible vendor's name or logo or trademark;
- the product identification or type.

Where it is not possible to apply the marking directly onto the product, then the marking shall be placed on the smallest supplied package.

7.2 Durability and legibility

Marking on the product shall be durable and easily legible to normal or corrected vision.

Compliance is checked by inspection and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit.

After the test, the marking shall remain legible to normal or corrected vision.

Marking made by moulding, pressing or engraving is not subjected to the rubbing test.

NOTE Examples of methods for applying marking are by moulding, pressing, engraving, printing, adhesive labels, etc.

7.3 Documentation

The manufacturer or responsible vendor shall provide in their literature:

- the classifications according to Clause 6;
- the maximum and minimum cable or bundle diameters;
- the lateral load for cleats declared under 6.4.2;
- the axial load for cleats if declared under 6.4.3;
- the method of assembly and installation including tightening torques, where appropriate, and any limitation on mounting orientation for lateral retention.

Additionally, for cleats and/or intermediate restraints declared under 6.4.4 or 6.4.5, the manufacturer or responsible vendor shall provide in their literature:

- the peak short-circuit current;
- the initial r.m.s. symmetrical short-circuit current;
- the cable outside diameter and the distance between cable centres, S, used in the test in 9.5;
- the maximum spacing, D, as shown in Figure 4.

Compliance is checked by inspection.

NOTE Some or all of this information may also be required to be provided on packaging or instruction sheets supplied with the product.

8 Construction

The surfaces of cleats and intermediate restraints shall be free from sharp edges, burrs, flash, etc. that are likely to damage cables or inflict injury to the installer or user.

Compliance is checked by visual and manual inspection of the surface.

9 Mechanical properties

9.1 Requirements

Cleats and intermediate restraints shall be:

- a) capable of accommodating the size or range of cable or cable bundle diameter declared by the manufacturer or responsible vendor without cracking or breaking, or stripping of the threads of screws or bolts;

Compliance is checked by measurement and by visual and manual inspection.

- b) resistant to impact at the minimum declared temperature;

Compliance is checked by the test according to 9.2.

- c) capable of withstanding the lateral load at the maximum declared temperature;

Compliance is checked by the test according to 9.3

- d) capable of withstanding the axial load at the maximum declared temperature where declared in 6.4.3;

Compliance is checked by the test in 9.4.

- e) resistant to electromechanical forces, where declared in 6.4.4 or 6.4.5.

Compliance is checked by the test in 9.5.

9.2 Impact test

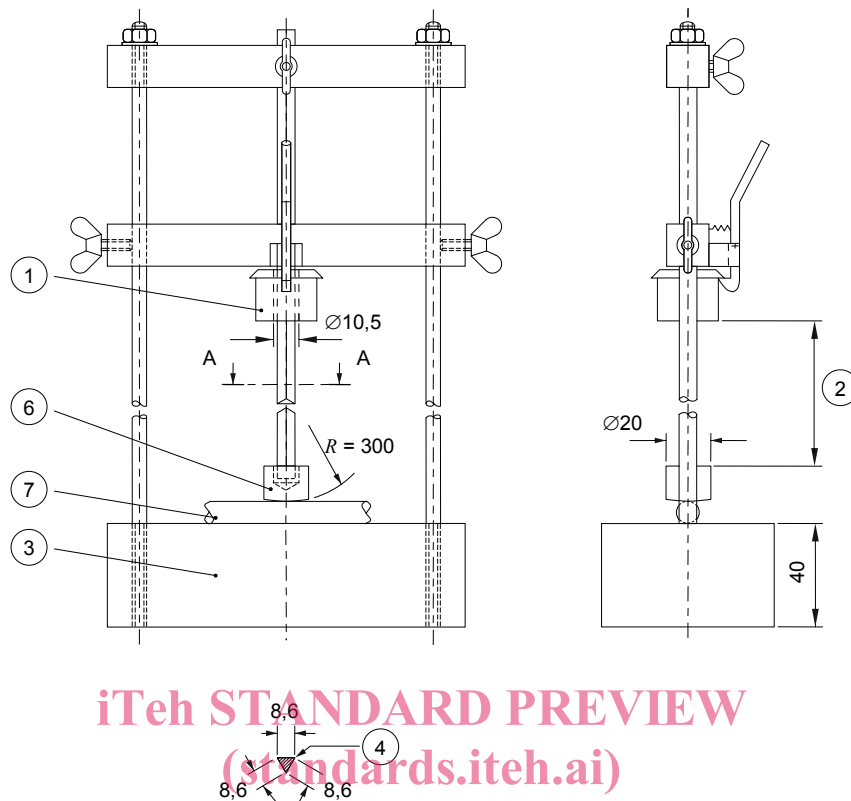
The impact test is carried out using a typical arrangement as shown in Figure 1. The component transmitting the impact to the cleat or intermediate restraint shall have a spherical radius of (300^{+5}_{-5}) mm at the point of contact.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 61914:2015](https://standards.iteh.ai/catalog/standards/sist/665d4792-4b3a-44c5-96fe-27b9be5cf0b1/iec-61914-2015)

<https://standards.iteh.ai/catalog/standards/sist/665d4792-4b3a-44c5-96fe-27b9be5cf0b1/iec-61914-2015>

Dimensions in millimetres



iTeh STANDARD PREVIEW
(standards.iteh.ai)

5 IEC 61914:2015

<https://standards.iteh.ai/catalog/standards/sist/665d4792-4b3a-44c5-96fe-27b9be5cf0b1/iec-61914-2015>

IEC

Key	
1	Hammer
2	fall height (see Table 3)
3	rigid steel base
4	slightly rounded edges
5	section A – A
6	steel intermediate piece
7	Sample

Figure 1– Typical arrangement for impact test

Before the test, the samples are assembled onto a solid polyamide or metal test mandrel having a diameter equivalent to the maximum declared diameter for which the cleat is designed and mounted on a rigid support.

For cleats and intermediate restraints taking more than one cable, the appropriate number of mandrels is used.

For metallic cleats and intermediate restraints, the test is carried out at ambient temperature.

For composite and non-metallic cleats and intermediate restraints, the samples are conditioned at the declared lowest temperature according to Table 2 with a tolerance of $(\pm 2)^\circ\text{C}$ for a period of $(60 \pm 5) \text{ min}$. The impact is applied within a period of $(10 \pm 0.2) \text{ s}$ after removal from the refrigerator.