IEC 60794-2-50

Edition 2.0 2020-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Optical fibre cables –
Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies

Câbles à fibres optiques –
Partie 2-50: Câbles intérieurs – Spécification de famille pour les câbles simplex et duplex utilisés dans les ensembles de câbles équipés

IEC 60794-2-50:2020-01(en-fr)

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2020 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 Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
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 corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
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 It also gives information on projects, replaced and withdrawn publications.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 once a month by email.

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: sales@iec.ch.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
67 000 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.

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.

Recherche de publications IEC - webstore.iec.ch/advsearchform
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 une fois par mois par email.

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

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
67 000 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.

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

IEC 60794-2-50

Edition 2.0 2020-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Optical fibre cables –
Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies

Câbles à fibres optiques –
Partie 2-50: Câbles intérieurs – Spécification de famille pour les câbles simplex et duplex utilisés dans les ensembles de câbles équipés

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.10

ISBN 978-2-8322-7732-4

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.

AVA Documents
Document Sharing Hub

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Full document details: IEC 60794-2-50 2020

CONTENTS

FOREWORD 4
1 Scope 6
2 Normative references 6
3 Terms and definitions 7
4 Construction 7
4.1 General 7
4.2 Optical fibres and primary coating 7
4.3 Buffer 7
4.4 Tube 8
4.5 Strength and anti-buckling members 8
4.6 Sheath 8
4.7 Sheath marking 8
4.8 Examples of cable constructions 8
5 Tests 9
5.1 General 9
5.2 Dimensions 9
5.3 Mechanical requirements 9
5.3.1 Tensile performance 9
5.3.2 Crush 10
5.3.3 Impact 10
5.3.4 Repeated bending 11
5.3.5 Bend 11
5.3.6 Torsion 11
5.3.7 Bend at low temperature 12
5.3.8 Kink 12
5.3.9 Sheath pull-off force 12
5.3.10 Abrasion resistance of cable marking 13
5.3.11 Buffered fibre movement under compression 13
5.4 Environmental requirements 13
5.4.1 Temperature cycling 13
5.4.2 Shrinkage (informative) 14
5.5 Transmission requirements 14
5.6 Fire performance 14
Annex A (informative) Examples of types of cable constructions 15
Annex B (informative) Guidance on the selection of tests applicable to optical fibre cables for use in patchcords 18
Bibliography 21

Figure A.1 – Simplex loose non-buffered fibre cable 15
Figure A.2 – Simplex fibre cable 15
Figure A.3 – Duplex loose non-buffered fibre cable 16
Figure A.4 – Duplex fibre cable 16
Figure A.5 – Duplex fibre zip cord 16
Figure A.6 – Duplex flat cable 17
Figure A.7 – Duplex round cable (breakout cable) 17

AVA Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

Table 1 – Dimensions of buffered fibres 8
Table 2 – Temperature cycling ranges according to the application environment 14
Table B.1 – Cable test method summary 18
Table B.2 – Blank detail specification for cable testing agreement 20

Documents
Document Sharing Hub
Full document details: IEC 60794-2-50 2020

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies

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 60794-2-50 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2008. This edition constitutes a technical revision.

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

a) update of the normative references;
b) review and update of parameters and requirements for mechanical tests and environmental tests;
c) Annex B has been removed and test method for sheath pull-off force evaluation refers to IEC 60794-1-21, method E21;
d) Annex C has been removed and test method for sheath shrinkage evaluation refers to IEC 60794-1-22, method F11;

AVA Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

e) Annex D has been removed and test method for buffered fibre movement under compression refers to IEC 60794-1-21, method E22;

f) Annex E has been removed and test method for temperature cycling evaluation refers to IEC 60794-1-22, method F12;

g) fibre type designations have been updated and the new wideband MM fibre is included as an option.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
86A/1972/FDIS	86A/1978/RVD

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

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

A list of all the parts in the IEC 61340 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document 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.

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

OPTICAL FIBRE CABLES –

Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies

1 Scope

This part of IEC 60794 is a family specification that specifies requirements for simplex and duplex optical fibre cables for use in terminated cable assemblies or for termination with optical fibre passive components.

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 60793-1-20, *Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry*

IEC 60793-1-21, *Optical fibres – Part 1-21: Measurement methods and test procedures – Coating geometry*

IEC 60793-1-32, *Optical fibres – Part 1-32: Measurement methods and test procedures – Coating strippability*

IEC 60793-1-40, *Optical fibres – Part 1-40: Attenuation measurement methods*

IEC 60793-2-10, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 60794-1-1, *Optical fibre cables – Part 1-1: Generic specification – General*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures – General guidance*

IEC 60794-1-21, *Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods*

IEC 60794-1-22, *Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental tests methods*

IEC 60794-1-23, *Optical fibre cables – Part 1-23: Generic specification – Basic optical cable test procedures – Cable element test methods*

IEC 60794-2, *Optical fibre cables – Part 2: Indoor cables – Sectional specification*

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

IEC 60811-202, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non-metallic sheath*

IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60794-1-1 and the following 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

3.1
terminated cable assembly
short length of cable provisioned with a connector at both ends

Note 1 to entry: Examples from ISO/IEC 11801 (all parts) are fibre optic cords used to establish connections on patch panels, equipment and at work areas or to connect outlets to the terminal equipment.

4 Construction

4.1 General

In addition to the constructional requirements in IEC 60794-2, the following considerations apply to simplex and duplex indoor cables for use in terminated cable assemblies.

It is not the intention of this document to specify the finished terminated cable assembly complete with terminations.

There shall be no fibre splice in a delivery length. It shall be possible to identify each individual fibre throughout the length of the cable.

4.2 Optical fibres and primary coating

Multimode or single-mode optical fibres meeting the requirements of IEC 60793-2-10 sub-categories A1-OM1 and A1-OM2 to A1-OM5 or IEC 60793-2-50 class B shall be used.

4.3 Buffer

If a tight or semi-tight (loosely applied) buffer is required, it shall consist of one or more layers of inert material. Semi-tight tubes may be filled. Unless otherwise specified, the tight buffer shall be removable in one operation together with fibre coating over a specified length. For semi-tight and loose buffer, the buffer material is stripped off for a specified length leaving the primary coating of the fibre intact.

Specified buffer strippability lengths:

– tight: 15 mm;
– semi tight: 300 mm;
– loose: 1,0 m minimum.

Documents
Document Sharing Hub
Full document details: IEC 60794-2-50 2020

Strip force shall comply to the values stated in the relevant specification and the evaluation shall be carried out according IEC 60793-1-32.

Buffer dimensions are shown in Table 1.

Table 1 – Dimensions of buffered fibres

Nominal diameter mm	Tolerances mm
0,3 to 0,9	±0,05

Lower tolerance levels can be a requirement for buffered fibres having a low nominal diameter within the specified range. In such cases, tolerance values shall be agreed between supplier and customer.

4.4 Tube

One or two primary coated or buffered fibres are packaged (loosely or not) in a tube construction which may be filled. The tube may be reinforced with a composite wall.

If required, the suitability of the tube shall be determined by an evaluation of its kink resistance in accordance with IEC 60794-1-23, method G7.

4.5 Strength and anti-buckling members

The cable shall be designed with sufficient strength members to meet the requirements of this document.

The strength and/or anti-buckling member may be either metallic or non-metallic and may be located in the cable core and/or under the sheath and/or in the sheath.

4.6 Sheath

The cable shall have a uniform overall protective sheath. The cable diameter shall be specified in the relevant detail specification (or product specification). Sheath removal is an important feature of these cables. Sheath pull-off force shall be determined in accordance with IEC 60794-1-21, method E21.

4.7 Sheath marking

If required, the cable shall be marked as agreed between the customer and supplier. The marking shall be resistant to abrasion, which shall be verified in accordance with IEC 60794-1-21, method E2B, method 2.

4.8 Examples of cable constructions

Examples of some main types of cable construction are shown in Annex A.

Other configurations are not excluded if they meet the mechanical, environmental, transmission and termination requirements given in this document.

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

5 Tests

5.1 General

Compliance with the specification requirements shall be verified by carrying out tests selected from Clause 5. It is not intended that all tests be carried out in all cases, and Annex B provides guidance on the selection of tests. The tests to be applied and the frequency of testing shall be agreed between the customer and supplier.

Some of the following tests can be performed on a short sample length of cable which is still an integral part of a longer length, thus making it possible to detect permanent changes in attenuation. As a general requirement for the tests specified in this document, the spirit is to keep "no change in attenuation" criteria at the end of each evaluation, although the parameters specified in this document may be affected by measurement uncertainty arising either from measurement errors or calibration errors. The optical total uncertainty of measurement for this document shall be ±0,05 dB for singlemode fibres and ±0,2 dB for multimode fibres. Any measured value within this range shall be considered as "no change in attenuation".

Cabled single-mode fibres are measured at 1 550 nm or 1 625 nm and shall be agreed between the customer and supplier. Cabled multimode fibres are measured at 850 nm or 1 300 nm and shall be agreed between the customer and supplier. Measurements shall be carried out according to IEC 60793-1-40.

NOTE The optimized wavelength for multimode fibres A1-OM3 and A1-OM4 is 850 nm and for A1-OM5 fibre, the targeted operational wavelength(s) is between 850 nm and 950 nm.

If loops are used within a test to fix the ends of a cable, the loop diameter shall be equal or greater than the specified minimum cable bend diameter to avoid cable damage and excessive mode filtering in multimode fibre.

Unless otherwise specified, all tests shall be carried out at expanded test conditions as specified in IEC 60794-1-2.

5.2 Dimensions

The fibre dimensions and tolerances shall be checked in accordance with test method IEC 60793-1-20 or IEC 60793-1-21. The diameter of the buffer and of the cable, as well as the thickness of the sheath, shall be measured in accordance with the methods of IEC 60811-202 and IEC 60811-203.

The cable diameter tolerance shall be ±0,2 mm.

The deviation of the average sheath thickness shall be within the tolerance of ±0,1 mm for 100 % of the cable length.

5.3 Mechanical requirements

5.3.1 Tensile performance

Method: IEC 60794-1-21, E1

Diameter of chuck drums and transfer devices: not less than the minimum loaded bending diameter specified for the cable, at least 250 mm diameter.

Load for 5 min:

– simplex cables d < 1,2 mm at 50 N; simplex cables 1,2 mm ≤ d ≤ 2,0 mm at 70 N; simplex cables d > 2,0 mm at 100 N;
– duplex round cables at 100 N;

Documents
Document Sharing Hub
Full document details: IEC 60794-2-50 2020

– zipcord cables d ≤ 2,0 mm at 140 N; zipcord cables d > 2,0 mm at 200 N.

Length of sample: sufficient to achieve the desired accuracy of measurement of attenuation change shall be agreed between the customer and supplier.

Requirements:

– in all cases, fibre strain shall be less than 0,6 %;
– the maximum allowable increase in attenuation during the test shall be specified in the product specification; there shall be no change in attenuation after the test;
– there shall be no damage to the cable elements.

5.3.2 Crush

Method: IEC 60794-1-21, E3A

Force short term:

– 300 N for simplex/duplex cables with diameter ≤ 2,0 mm;
– 500 N for simplex/duplex cables with diameter > 2,0 mm.

Duration short term: 1 min

Number of crushes short term: 1

Force long term:

– 100 N for simplex/duplex cables with diameter ≤ 2,0 mm;
– 200 N for simplex/duplex cables with diameter > 2,0 mm.

Duration long term: 10 min

Number of crushes long term: 1, separated at least 500 mm to any other loaded position.

Requirements:

– the maximum increase in attenuation during the test with a long term force shall be specified in the product specification; there shall be no change in attenuation after the test with short term and long term force;
– there shall be no damage to the cable elements.

For cables having a non-circular cross section, the force shall be applied in the direction of the minor axis (perpendicular to the major axis).

5.3.3 Impact

Method: IEC 60794-1-21, E4

– impact energy: 0,5 J for simplex/duplex cables with diameter ≤ 2,0 mm; 1,0 J for simplex/duplex cables with diameter > 2,0 mm;
– number of impacts: at least 3, each separated at least 500 mm.

Requirements:

– there shall be no change in attenuation after the test; there shall be no damage to the cable elements;
– any imprint of the striking surface on the cable sheath is not considered mechanical damage.

AVA Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

For cables having a non-circular cross section, the force shall be applied in the direction of the minor axis (perpendicular to the major axis).

5.3.4 Repeated bending

Method: IEC 60794-1-21, E6

Bending diameter:

– 60 mm for simplex and non-circular duplex cables (consider the cable diameter is the minor dimension);
– 40 times cable diameter for circular duplex cables but not less than 60 mm.

Number of cycles: 200

Mass of weights: sufficient to contour the apparatus, for example 1 kg to 2 kg.

Requirements:

– the maximum increase in attenuation during the test shall be specified in the product specification;
– there shall be no change in attenuation after the test, and there shall be no damage to the cable elements.

NOTE For cables having a non-circular cross section, the bend requirements are determined using the minor axis as the cable diameter with bending in the direction of the preferential bend.

5.3.5 Bend

Method: IEC 60794-1-21, E11A

Bending diameter: 20 times cable diameter, but not less than 60 mm (for non-circular cables see note below).

Number of turns per helix: 6

Number of cycles: 3

Length of sample: sufficient to carry out the test.

Prior to bending: at both ends of the sample, all the cable components shall be fixed together, for example by loops or glue.

Requirements:

– the maximum increase in attenuation during the test shall be specified in the product specification;
– there shall be no change in attenuation after the test, and there shall be no damage to the cable elements.

NOTE For cables having a non-circular cross section, the bend requirements are determined using the minor axis as the cable diameter with bending in the direction of the preferential bend.

5.3.6 Torsion

Method: IEC 60794-1-21, E7

Number of cycles: 10

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020

Distance between fixed and rotating clamps: greater than 0,3 m or 125 times cable diameter (for non-circular cables, the cable diameter is the minor dimension).

Length of sample: sufficient to carry out the test.

Unless otherwise specified in the detail specification, specimen sag or bend may be minimized by applying tension sufficient to keep the specimen straight.

Requirements:

– the maximum increase in attenuation during the test shall be specified in the product specification;
– there shall be no change in attenuation after the test, and there shall be no damage to the cable elements.

5.3.7 Bend at low temperature

Method: IEC 60794-1-21, E11A

Bending diameter: 20 times cable diameter (for non-circular cables, the cable diameter is the minor dimension) but not less than 60 mm.

Number of cycles: 2

Number of turns per helix: 4

Test temperature: 0 °C for applications at category C and C^{HD} environment;

The acronyms for the categories are specified in IEC 61753-1. A suitable category should be selected according to the application. See Table 2.

Requirements:

– the maximum increase in attenuation during the test shall be specified in the product specification;
– there shall be no change in attenuation after the test, and there shall be no damage to the cable elements.

5.3.8 Kink

Method: IEC 60794-1-21, E10

Inner loop diameter (for non-circular cables, the cable diameter is the minor dimension): 5 times cable diameter.

NOTE This is not an operational parameter; this is to address short-term installation/handling performance.

Requirement: no kink on cable shall occur when submitted to the specified loop diameter.

5.3.9 Sheath pull-off force

Method: IEC 60794-1-21, E21

Rate of separation: ≤ 200 mm/min

Strip length: 50 mm

Documents
Document Sharing Hub

Full document details: IEC 60794-2-50 2020