

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Conduit systems for cable management –
Part 21: Particular requirements – Rigid conduit systems**

**Systèmes de conduits pour la gestion du câblage –
Partie 21: Exigences particulières – Systèmes de conduits rigides**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2021 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
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 It also gives information on projects, replaced and withdrawn publications.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.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

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 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

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.

IEC online collection - oc.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

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.



IEC 61386-21

Edition 2.0 2021-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Conduit systems for cable management –
Part 21: Particular requirements – Rigid conduit systems**

**Systèmes de conduits pour la gestion du câblage –
Partie 21: Exigences particulières – Systèmes de conduits rigides**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.10

ISBN 978-2-8322-1053-1

**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	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 General requirements	5
5 General conditions for tests	5
6 Classification	5
7 Marking and documentation	5
8 Dimensions	6
9 Construction	7
10 Mechanical properties	7
11 Electrical properties	9
12 Thermal properties	9
13 Fire hazard	9
14 External influences	9
15 Electromagnetic compatibility	10
Annex A (normative) Classification coding for conduit systems	14
Annex B (normative) Determination of material thickness	14
Annex C (normative) Additional test requirements for conduit systems already complying with IEC 61386-1:2008	14
Annex AA (informative) Calculation for minimum and maximum rate of increase of force for 10.2.4	15
Figure 101 – Bending apparatus for metallic and composite conduits	10
Figure 102 – Gauge for checking the minimum inside diameter of the conduit system after impact, bending, collapse and resistance to heat tests	11
Figure 103 – Bending apparatus for non-metallic and composite conduit	12
Figure 104 – Arrangement for collapse test	13
Figure AA.1 – Graph showing force against time for 750 N force	15
Table 101 – Thread lengths	6
Table 102 – Maximum entry diameter and minimum entry length details	7
Table AA.1 – Minimum and maximum rate of increase of force for 10.2.4	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONDUIT SYSTEMS FOR CABLE MANAGEMENT –**Part 21: Particular requirements – Rigid conduit systems**

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 61386-21 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 2002. This edition constitutes a technical revision.

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

- a) Subclause 7.1.103 has been added requiring the manufacturer to declare whether the conduit is bendable;
- b) Annex AA has been added to provide guidance on the application of a constantly increasing force.

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

FDIS	Report on voting
23A/950/FDIS	23A/955/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 61386 series, published under the general title *Conduit systems for cable management*, can be found on the IEC website.

This document is to be used in conjunction with IEC 61386-1:2008 and IEC 61386-1:2008/AMD1:2017.

This document supplements or modifies the corresponding clauses of IEC 61386-1:2008 and IEC 61386-1:2008/AMD1:2017. Where a particular clause or subclause of IEC 61386-1:2008 and IEC 61386-1:2008/AMD1:2017 is not mentioned in this document, that clause or subclause applies as far as is reasonable. Where this document states "addition", "modification" or "replacement", the relevant text of IEC 61386-1:2008 and IEC 61386-1:2008/AMD1:2017 is to be adapted accordingly.

Subclauses, tables and figures which are in addition to those in IEC 61386-1:2008 and IEC 61386-1:2008/AMD1:2017 are numbered starting with 101. Annexes which are additional to those in IEC 61386-1:2008 and IEC 61386-1:2008/AMD1:2017 are lettered AA, BB, etc.

In this document, the following print types are used:

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

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.

CONDUIT SYSTEMS FOR CABLE MANAGEMENT –

Part 21: Particular requirements – Rigid conduit systems

1 Scope

Clause 1 of IEC 61386-1:2008 is applicable, except as follows:

Addition:

This part of IEC 61386 specifies the requirements for rigid conduit systems.

2 Normative references

Clause 2 of IEC 61386-1:2008 and of IEC 61386-1:2008/AMD1:2017 are applicable, except as follows:

Addition:

IEC 61386-1:2008, *Conduit systems for cable management – Part 1: General requirements*
IEC 61386-1:2008/AMD1:2017

3 Terms and definitions

Clause 3 of IEC 61386-1:2008 and of IEC 61386-1:2008/AMD1:2017 are applicable.

4 General requirements

Clause 4 of IEC 61386-1:2008 is applicable.

5 General conditions for tests

Clause 5 of IEC 61386-1:2008 and of IEC 61386-1:2008/AMD1:2017 are applicable.

6 Classification

Clause 6 of IEC 61386-1:2008 is applicable, except as follows:

Classifications 6.1.1, 1; 6.1.2, 1; 6.1.3, 2; 6.1.3, 3; 6.1.3, 4; 6.1.4, 1; and 6.1.5, 1 are not applicable.

NOTE Rigid conduit systems according to 6.1.1, 2 and 6.1.2, 2 and classification 1 from 6.2.1, Table 1 are not allowed in France.

7 Marking and documentation

Clause 7 of IEC 61386-1:2008 and of IEC 61386-1:2008/AMD1:2017 are applicable, except as follows: