

**SLOVENSKI STANDARD  
SIST EN IEC 61386-21:2021****01-september-2021****Nadomešča:****SIST EN 61386-21:2004****SIST EN 61386-21:2004/A11:2011**

---

**Sistemi kanalov za električne inštalacije - 21. del: Posebne zahteve - Togi sistemi kanalov (IEC 61386-21:2021)**

Conduit systems for cable management - Part 21: Particular requirements - Rigid conduit systems (IEC 61386-21:2021)

**iTeh STANDARD PREVIEW**

Elektroinstallationsrohrsysteme für die Kabel- und Leitungsverlegung - Teil 21: Besondere Anforderungen für starre Elektroinstallationsrohrsysteme (IEC 61386-21:2021)

[SIST EN IEC 61386-21:2021](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-325412051d07/iec-61386-21:2021)[https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-325412051d07/iec-61386-21:2021)

Systèmes de conduits pour la gestion du câblage - Partie 21: Exigences particulières - Systèmes de conduits rigides (IEC 61386-21:2021)

**Ta slovenski standard je istoveten z: EN IEC 61386-21:2021****ICS:**

29.120.10	Inštalacijske cevi za električne namene	Conduits for electrical purposes
-----------	---	----------------------------------

**SIST EN IEC 61386-21:2021****en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN IEC 61386-21:2021

<https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051df3/sist-en-iec-61386-21-2021>

EUROPEAN STANDARD

EN IEC 61386-21

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2021

ICS 29.120.10

Supersedes EN 61386-21:2004 and all of its  
amendments and corrigenda (if any)

English Version

## Conduit systems for cable management - Part 21: Particular requirements - Rigid conduit systems (IEC 61386-21:2021)

Systèmes de conduits pour la gestion du câblage –  
Partie 21: Exigences particulières - Systèmes de conduits  
rigides  
(IEC 61386-21:2021)

Elektroinstallationsrohrsysteme für die Kabel- und  
Leitungsverlegung - Teil 21: Besondere Anforderungen für  
starre Elektroinstallationsrohrsysteme  
(IEC 61386-21:2021)

This European Standard was approved by CENELEC on 2021-05-17. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

[SIST EN IEC 61386-21:2021](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-32c4e0214f38/iec-61386-21-2021)

[https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-32c4e0214f38/iec-61386-21-2021)

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

**EN IEC 61386-21:2021 (E)****European foreword**

The text of document 23A/950/FDIS, future edition 2 of IEC 61386-21, 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 IEC 61386-21:2021.

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) 2022-05-17
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-05-17

This document supersedes EN 61386-21:2004 and all of its amendments and corrigenda (if any).

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of EN 61386-1:2008/A1:2019.

**ITeH STANDARD PREVIEW**  
**(standards.iteh.ai)**

**Endorsement notice**

[SIST EN IEC 61386-21:2021](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051df3/sist-en-iec-61386-21-2021)

[https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051df3/sist-en-iec-61386-21-2021)

[25edde051df3/sist-en-iec-61386-21-2021](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051df3/sist-en-iec-61386-21-2021)

The text of the International Standard IEC 61386-21:2021 was approved by CENELEC as a European Standard without any modification.



# INTERNATIONAL STANDARD

---

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

**STANDARD PREVIEW**  
(standards.iteh.ai)

SIST EN IEC 61386-21:2021  
<https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051df3/sist-en-iec-61386-21-2021>

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 29.120.10

ISBN 978-2-8322-9664-6

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## 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 (standards.iteh.ai)

#### 3 Terms and definitions

[SIST EN IEC 61386-21:2021](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051483/sist-en-iec-61386-21-2021)

[https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-](https://standards.iteh.ai/catalog/standards/sist/e3ae849e-2c00-4c07-8b47-25edde051483/sist-en-iec-61386-21-2021)

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:

*Addition:*

**7.1.101** The conduit shall be marked in accordance with 7.1 along its entire length at regular intervals of preferably 1 m but not longer than 3 m and each length shall be marked at least once.

*Compliance is checked by inspection.*

**7.1.102** The manufacturer shall document, for the conduit system, the minimum inside diameter and the classification in accordance with Clause 6.

*Compliance is checked by inspection of the documentation.*

**7.1.103** The manufacturer shall declare whether the conduit is bendable and provide all information, instructions and, if necessary, bending aids for proper and safe bending of the conduit.

*Compliance is checked by inspection and by the tests specified in 10.4 and 10.6.*

## 8 Dimensions

*Replacement:*

**8.1** Threads and outside diameters shall comply with IEC 60423.

*Compliance is checked by means of the gauges specified in IEC 60423.*

**8.2** Threadable conduits and threadable conduit fittings, except terminating conduit fittings, shall comply with Table 101. Non-threadable conduit fittings, except fittings which are part of a conduit system declaring tensile strength, shall comply with Table 102. The minimum inside diameter of the conduit system shall be as declared by the manufacturer.

*Compliance is checked by measurement.*

**Table 101 – Thread lengths**

Size	External thread	Internal thread
	Minimum length	Minimum length
mm	mm	mm
6	05,5	06,5
8	06,5	07,5
10	08,5	09,5
12	10,5	11,5
16	12,5	13,5
20	14,0	15,0
25	17,0	18,0
32	19,0	20,0
40	19,0	20,0
50	19,0	20,0
63	19,0	20,0
75	19,0	20,0

**Table 102 – Maximum entry diameter and minimum entry length details**

Size mm	Maximum entry diameter mm	Minimum entry length mm
6	06,5	06,0
8	08,5	08,0
10	10,5	10,0
12	12,5	12,0
16	16,5	16,0
20	20,5	20,0
25	25,5	25,0
32	32,6	30,0
40	40,7	32,0
50	50,8	42,0
63	63,9	50,0
75	75,9	50,0

## 9 Construction

Clause 9 of IEC 61386-1:2008 is applicable.

## 10 Mechanical properties

Clause 10 of IEC 61386-1:2008 and of IEC 61386-1:2008/AMD1:2017 are applicable, except as follows:

### 10.2 Compression test

*Subclause 10.2 is applicable with the following addition:*

#### 10.2.4 Add the following note at the end of Subclause 10.2.4:

NOTE In order to achieve a uniformly increasing compression force, the force indicated in Table 4 is divided by time; this value is the required rate per second to fulfil the requirement.

Example: For a test force of 750 N an increase of the test force of 25 N/s is required (750 divided by 30 equals 25). Informative Annex AA gives detailed calculations including tolerances for time and force.

### 10.4 Bending test

*Replacement:*

*Conduits which are declared by the manufacturer as being bendable are tested in accordance with 10.4.101, 10.4.102 or 10.4.103.*

*Addition:*

#### 10.4.101 Metallic conduits

**10.4.101.1** *Conduit sizes 16, 20 and 25 are subjected to a bending test by means of the apparatus shown in Figure 101. Testing of other sizes is in accordance with the manufacturer's instructions.*