

© Copyright SEK. Reproduction in any form without permission is prohibited.

Elinstallationsrör med tillbehör – Del 1: Allmänna fordringar

*Conduit systems for electrical installations –
Part 1: General requirements*

Som svensk standard gäller europastandarden EN 61386-1:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61386-1:2004.

Nationellt förord

Europastandarden EN 61386-1:2004

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61386-1, First edition, 1996 - Conduit systems for electrical installations -
Part 1: General requirements**

jämte

Amendment No. 1, 2000

utarbetad inom International Electrotechnical Commission, IEC.

SS-EN 61386-1 kommer att ersätta SS-EN 50086-1, utgåva 1, 1994 när alla Delar 2 av SS-EN 61386 som har sin motsvarighet i SS-EN 50086 är fastställda.

ICS 29.120.10

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK,

som också kan lämna upplysningar om **sakinnehållet** i standarden.

Postadress: SEK, Box 1284, 164 29 KISTA

Telefon: 08 - 444 14 00. Telefax: 08 - 444 14 30

E-post: sek@sekom.se. Internet: www.sekom.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringssarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringssarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringssverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK

Box 1284
164 29 Kista
Tel 08-444 14 00
www.sekom.se

EUROPEAN STANDARD

EN 61386-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2004

ICS 29.120.10

Supersedes EN 50086-1:1993

English version

Conduit systems for electrical installations

Part 1: General requirements

(IEC 61386-1:1996 + A1:2000)

Systèmes de conduits pour installations
électriques

Partie 1: Règles générales
(CEI 61386-1:1996 + A1:2000)

Elektroinstallationsrohrsysteme für
elektrische Energie und für Informationen
Teil 1: Allgemeine Anforderungen
(IEC 61386-1:1996 + A1:2000)

This European Standard was approved by CENELEC on 2003-09-23. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 61386-1:1996 + A1:2000, prepared by SC 23A, Cable management systems, of IEC TC 23, Electrical accessories, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 61386-1 on 2003-09-23.

This European Standard supersedes EN 50086-1:1993 + corrigendum February 2001.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) –

This part 1 of EN 61386 is to be used in conjunction with the appropriate part 2, which contains clauses to supplement or modify the corresponding clauses in part 1, to provide the relevant particular requirements for each type of product. A conduit system which conforms to this standard is deemed safe for use.

In this standard, the following print types are used:

- requirements: in roman type;
- *test specifications*: in italic type;
- explanatory matter: in smaller roman type.

Annexes ZA and ZB have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61386-1:1996 + A1:2000 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 referenced documents are indispensable for the application 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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60417	1973 ¹⁾	Graphical symbols for use on equipment - Index, survey and compilation of the single sheets	HD 243 S12	1995
IEC 60423 (mod)	1993	Conduits for electrical purposes - Outside diameters of conduits for electrical installations and threads for conduits and fittings	EN 60423	1994
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60670	1989	General requirements for enclosures for accessories for household and similar fixed electrical installations	-	-
IEC 60695-2-1/1	1994	Fire hazard testing Part 2: Test methods – Section 1/sheet 1: Glow-wire end-product test and guidance	EN 60695-2-1/1 ²⁾	1996
IEC 60695-2-4/1	1991	Part 2: Test methods – Section 4/sheet 1: 1 kW nominal pre-mixed test flame and guidance	EN 60695-2-4/1 ³⁾	1993

¹⁾ IEC 60417:1973 and its supplements are superseded by the IEC 60417 database, which is to be used instead.

²⁾ EN 60695-2-1/1:1996 is superseded by EN 60695-2-11:2001, which is based on IEC 60695-2-11:2000.

³⁾ EN 60695-2-4/1:1993 is superseded by EN 60695-11-2:2003, which is based on IEC 60695-11-2:2003.

CONTENTS

	Page
Clause	
1 Scope	7
2 Normative references	7
3 Definitions	7
4 General requirements	11
5 General conditions for tests	11
6 Classification	13
7 Marking and documentation	17
8 Dimensions	19
9 Construction	19
10 Mechanical properties	23
11 Electrical properties	31
12 Thermal properties	35
13 Fire effects	41
14 External influences	41
15 Electromagnetic compatibility	45
Figures	
1 Arrangement for compression test	46
2 Impact test apparatus	47
3 Assembly of conduit and conduit fittings for bonding test	48
4 Arrangement for insulation resistance and electric strength test – Rigid conduit	49
5 Arrangement for insulation resistance and electric strength test – Pliable and flexible conduit	50
6 Enclosure for burning test	51
7 Arrangement for burning test	52
8 Test apparatus for burning resistance to heat	53
Annex A – Classification coding for conduit systems	63

CONDUIT SYSTEMS FOR ELECTRICAL INSTALLATIONS –

Part 1: General requirements

1 Scope

This part of IEC 1386 specifies requirements and tests for conduit systems, including conduits and conduit fittings, for the protection and management of insulated conductors and/or cables in electrical installations or in communication systems up to 1000 V a.c. and/or 1500 V d.c. This standard applies to metallic, non-metallic and composite conduit systems, including threaded and non-threaded entries which terminate the system. This standard does not apply to enclosures and connecting boxes which come within the scope of IEC 670.

NOTES

- 1 Certain conduit systems may also be suitable for use in hazardous atmospheres. Regard should then be taken of the extra requirements necessary for equipment to be installed in such conditions.
- 2 Earthing conductors may or may not be insulated.

2 Normative references

The following normative documents contain provisions which through reference in this text, constitute provisions of this part of IEC 1386. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 1386 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 417: 1973, *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets, as well as all of the supplements A to L*

IEC 423: 1993, *Conduits for electrical purposes – Outside diameters of conduits for electrical installations and threads for conduits and fittings*

IEC 529: 1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 670: 1989, *General requirements for enclosures for accessories for household and similar fixed electrical installations*

IEC 695-2-1/1:1991, *Fire hazard testing – Part 2: Test methods – Section 1/Sheet 1: Glow-wire end-product test and guidance*

IEC 695-2-4/1: 1991, *Fire hazard testing – Part 2: Test methods – Section 4/Sheet 1: 1 kW nominal pre-mixed test flame and guidance*

3 Definitions

For the purposes of this International Standard, the following definitions apply: