

---

**High-voltage fuses - Part 2: Expulsion fuses (IEC 60282-2:1995)**

High-voltage fuses -- Part 2: Expulsion fuses

Hochspannungssicherungen -- Teil 2: Austreibende Sicherungen

Fusibles à haute tension -- Partie 2: Coupe-circuit à expulsion

**Ta slovenski standard je istoveten z: HD 636 S1:1996**[SIST HD 636 S1:1998](https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998)<https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998>**ICS:**

29.120.50	Varovalke in druga medtokovna zaščita	Fuses and other overcurrent protection devices
-----------	---------------------------------------	------------------------------------------------

**SIST HD 636 S1:1998****en**

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

SIST HD 636 S1:1998

<https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998>

HARMONIZATION DOCUMENT  
DOCUMENT D'HARMONISATION  
HARMONISIERUNGSDOKUMENT

**HD 636 S1**

February 1996

ICS 29.120.50

Descriptors: High-voltage fuses, expulsion fuses, time-current characteristic

English version

**High-voltage fuses**  
**Part 2: Expulsion fuses**  
**(IEC 282-2:1995)**

Fusibles à haute tension  
Partie 2: Coupe-circuit à expulsion  
(CEI 282-2:1995)

Hochspannungssicherungen  
Teil 2: Ausblassicherungen  
(IEC 282-2:1995)

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

SIST HD 636 S1:1998[https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-](https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998)[7e1f680b597f/sist-hd-636-s1-1998](https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998)

This Harmonization Document was approved by CENELEC on 1995-11-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

Up-to-date lists and bibliographical references concerning such national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 document 32A/157/DIS, future edition 2 of IEC 282-2, prepared by SC 32A, High-voltage fuses, of IEC TC 32, Fuses, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as HD 636 S1 on 1995-11-28.

The following dates were fixed:

- latest date by which the existence of the HD  
has to be announced at national level (doa) 1996-03-01
- latest date by which the HD has to be implemented  
at national level by publication of a harmonized  
national standard or by endorsement (dop) 1996-09-01
- latest date by which the national standards conflicting  
with the HD have to be withdrawn (dow) 1996-09-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annexes A, B and C are informative.

Annex ZA has been added by CENELEC.

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

#### Endorsement notice

The text of the International Standard IEC 282-2:1995 was approved by CENELEC as a Harmonization Document without any modification.

SIST HD 636 S1:1998

<https://standards.iteh.ai/catalog/standards/sist/cc585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998>

## Annex ZA (normative)

Normative references to international publications  
with their corresponding European publications

This Harmonization document incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Harmonization document only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 50(151)	1978	International Electrotechnical Vocabulary (IEV) Chapter 151: Electrical and magnetic devices	-	-
IEC 50(441)	1974	Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 56 (mod)	1987	High-voltage alternating current circuit-breakers	HD 348 S6 <sup>1)</sup>	1995
IEC 60-1	1989	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991
IEC 71-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 71-2	1976	Part 2: Application guide	HD 540.2 S1	1991
IEC 85	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 129	1984	Alternating current disconnectors and earthing switches	EN 60129	1994
IEC 265-1	1983	High-voltage switches Part 1: High-voltage switches for rated voltages above 1 kV and less than 52 kV	HD 355.1 S3 <sup>2)</sup>	1995
IEC 549	1976	High-voltage fuses for the external protection of shunt power capacitors	-	-
IEC 694	1980	Common clauses for high-voltage switchgear and controlgear standards	HD 448 S4 <sup>3)</sup>	1996

1) HD 348 S6 includes A1:1992 + A2:1995 to IEC 56.

2) HD 355.1 S3 includes A1:1984 + A2:1994 to IEC 265-1.

3) HD 448 S4 includes A3:1995 to IEC 694.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 787	1983	Application guide for the selection of fuse-links of high-voltage fuses for transformer circuit applications	-	-
IEC 815	1986	Guide for the selection of insulators in respect of polluted conditions	-	-
IEC 898 (mod)	1987	Circuit-breakers for overcurrent protection for household and similar installations	EN 60898 <sup>4)</sup> + corr. October + A11 + A12 + A13 + A14 + A15	1991 1991 1994 1995 1995 1995 1995

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

SIST HD 636 S1:1998

<https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998>

---

4) EN 60898 includes the corrigendum May 1988 + A2:1990 + A3:1990 and corrigendum August 1990 to IEC 898.

NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC  
282-2

Deuxième édition  
Second edition  
1995-09

Fusibles à haute tension –

Partie 2:  
Coupe-circuit à expulsion

iTeh STANDARD PREVIEW  
(standards.iteh.ai)  
High-voltage fuses –  
Part 2:  
Expulsion fuses

<https://standards.iteh.ai/catalog/standards/sist/cc585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998>

© CEI 1995 Droits de reproduction réservés — Copyright — all rights reserved

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'éditeur.

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 the publisher.

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembe Genève, Suisse



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE XA

Pour prix, voir catalogue en vigueur  
For price, see current catalogue

## CONTENTS

Page

FOREWORD.....	7
Clause	
1 Scope.....	9
2 Normative references.....	9
3 Service conditions.....	11
4 Definitions .....	13
4.1 Electrical characteristics .....	13
4.2 Fuses and their component parts (see figure 1).....	15
4.3 Additional terms.....	15
5 Classification and designation .....	17
5.1 Classification .....	17
5.2 Fuse-link speed designation.....	17
6 Ratings.....	19
6.1 General .....	19
6.2 Rated voltage.....	19
6.3 Rated current.....	19
6.4 Rated frequency .....	19
6.5 Rated breaking capacity .....	21
6.6 Rated insulation level (of a fuse or fuse-base).....	21
7 Standard conditions of use and behaviour.....	23
7.1 Standard conditions of use with respect to breaking capacity.....	23
7.2 Standard conditions of behaviour with respect to breaking capacity .....	23
7.3 Time-current characteristics.....	25
7.4 Temperature and temperature rise .....	27
7.5 Electromagnetic compatibility.....	27
7.6 Mechanical requirements (for distribution fuse-cutouts) .....	27
8 Type tests.....	29
8.1 Conditions for performing the tests .....	29
8.2 List of type tests and test reports .....	29
8.3 Common test practices for all type tests .....	31
8.4 Dielectric tests.....	31
8.5 Temperature-rise tests.....	35
8.6 Breaking tests.....	37
8.7 Time-current characteristics tests .....	45
8.8 Mechanical tests (for distribution fuse-cutouts).....	47
8.9 Artificial pollution tests .....	49
9 Acceptance tests .....	49
10 Markings and information .....	49
10.1 Identifying markings.....	49
10.2 Information to be given by the manufacturer.....	51



Clause	Page
11 Application guide .....	51
11.1 Object.....	51
11.2 General .....	51
11.3 Application.....	51
11.4 Operation .....	57
11.5 Information about special requirements not covered by this standard .....	57

## Tables

1 Altitude correction factors for insulation levels .....	59
2 Altitude correction factors for temperature rise .....	59
3 Rated voltages.....	61
4 Rated insulation levels (Series I) .....	63
5 Rated insulation levels (Series II) .....	65
6 Test parameters.....	67
7 Values of circuit-power factor for test-duty 4.....	71
8 Standardized values of transient recovery voltage for test-duties 1, 2 and 3 – Class A fuses.....	71
9 Standardized values of transient recovery voltage for test-duties 1, 2, and 3 – Class B fuses.....	73
10 Standardized values of transient recovery voltage for test-duty 1 – Class C fuses .....	75
11 Standardized values of transient recovery voltage for test-duty 2 – Class C fuses .....	77
12 Standardized values of transient recovery voltage for test-duty 3 – Class C fuses .....	79
13 Standardized values of transient recovery voltage for test-duty 4 – Class A fuses.....	81
14 Standardized values of transient recovery voltage for test-duty 4 – Class B, and C fuses .....	83
15 Limit values for pre-arcing time-current characteristics – Fuse-links designated type K .....	85
16 Limit values for pre-arcing time-current characteristics – Fuse-links designated type T.....	87
17 Temperature and temperature-rise limit values of parts and materials.....	89
18 Dielectric tests .....	93
19 Size of the conductors for the temperature-rise tests .....	93

## Figures

1 Terminology for expulsion fuses .....	95
2 Diagram of connections of a three-pole fuse.....	97
3 Typical diagrams for breaking tests .....	99
4 Breaking-test arrangement of the equipment .....	101
5 Breaking-test interpretation of oscillograms .....	103
6 Representation of a specified TRV by a two-parameter reference line and a delay line .....	105
7 Example of prospective test TRV with two-parameter envelope which satisfies the conditions to be met during type test.....	105

## Annexes

A Reasons for the selection of breaking-test values .....	107
B Typical dimensions for fuse-links having an inner arc-quenching tube and used in distribution fuse-cutouts and open-link cutouts.....	111
C Operating rods for fuses.....	115

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## HIGH-VOLTAGE FUSES –

## Part 2: Expulsion fuses

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

International Standard IEC 282-2 has been prepared by sub-committee 32A: High-voltage fuses, of IEC technical committee 32: Fuses.

This second edition cancels and replaces the first edition published in 1970 and Amendment 1, 1978, and constitutes a technical revision.

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

DIS	Report on voting
32A/157/DIS	32A/170/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.

Annexes A, B, and C are for information only.

IEC 282 consists of the following parts, under the general title *High-voltage fuses*:

- Part 1: 1985, Current-limiting fuses
- Part 2: 1994, Expulsion fuses
- Part 3: 1976, Determination of short-circuit power factor for testing current-limiting fuses and expulsion and similar fuses.

## HIGH-VOLTAGE FUSES –

### Part 2: Expulsion fuses

#### 1 Scope

This International Standard specifies requirements for expulsion fuses designed for use outdoors or indoors on alternating current systems of 50 Hz and 60 Hz, and of rated voltages exceeding 1 000 V.

Expulsion fuses are fuses in which the arc is extinguished by the expulsion effects of the gases produced by the arc.

Expulsion fuses are classified according to the TRV (transient recovery voltage) capability in classes A, B and C.

This standard covers only the performance of fuses, each one comprising a specified combination of fuse-base, fuse-carrier, and fuse-link which have been tested in accordance with this standard; and successful performance of other combinations cannot be implied from this standard.

This standard may also be used for non-expulsion fuses in which the interruption process waits for natural current zero to clear the circuit.

#### NOTES

- 1 See clause 5 and application guide for specific information regarding the selection of fuse class.
- 2 Fuses required for the protection of capacitors and for transformer circuit applications are subject to additional requirements (see IEC 549 or IEC 787).
- 3 This standard does not cover load-switching nor fault-making capabilities. Information regarding requirements related to switching capabilities may be found in IEC 265-1.
- 4 This standard does not cover aspects related to the level of noise, nor the emission of hot gases inherent to some types of expulsion fuses during the process of interruption of fault currents.

#### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision and parties to agreements based on this International Standard 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 50(151): 1978, *International Electrotechnical Vocabulary (IEV) – Chapter 151: Electrical and magnetic devices*

IEC 50(441): 1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*

IEC 56: 1987, *High-voltage alternating-current circuit-breakers*

IEC 60-1: 1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 71-1: 1993, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 71-2: 1976, *Insulation co-ordination – Part 2: Application guide*

IEC 85: 1984, *Thermal evaluation and classification of electrical insulation*

IEC 129: 1984, *Alternating current disconnectors (isolators) and earthing switches*

IEC 265-1: 1983, *High-voltage switches – Part 1: High-voltage switches for rated voltages above 1 kV and less than 52 kV*

IEC 549: 1976, *High-voltage fuses for the external protection of shunt power capacitors*

IEC 694: 1980, *Common clauses for high-voltage switchgear and controlgear standards*

IEC 787: 1983, *Application guide for the selection of fuse-links of high-voltage fuses for transformer circuit applications*

IEC 815: 1986, *Guide for the selection of insulators in respect of polluted conditions*

IEC 898: 1987, *Circuit-breakers for overcurrent protection for household and similar installations*

STANDARD PREVIEW  
(standards.iteh.ai)

SIST HD 636 S1:1998

<https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998>

### 3 Service conditions

#### 3.1 Normal service conditions

Fuses complying with this standard are designed to be used under the following conditions:

a) The maximum ambient air temperature is 40 °C and its mean measured over a period of 24 h does not exceed 35 °C. The total solar radiation does not exceed 1,1 kW/m<sup>2</sup>.

The minimum ambient temperature is –5 °C for class "minus 5 indoor", –15 °C for class "minus 15 indoor or outdoor", –25 °C for class "minus 25 indoor or outdoor" and –40 °C for class "minus 40 outdoor".

NOTE – Attention is drawn to the fact that the time-current characteristics may be influenced by changes in ambient temperature.

b) The pollution level as classified in IEC 815, clause 3, does not exceed level "medium".

c) For indoor installations, only normal condensation is present.

- d) For outdoor installations, the wind pressure does not exceed 700 Pa (corresponding to 34 m/s wind speed).
- e) The altitude does not exceed 1 000 m.

## NOTES

- 1 When fuses are required for use above 1 000 m, the rated insulation levels to be specified should be determined by multiplying the standard insulation levels given in tables 4 and 5 by the appropriate correction factors given in table 1, or reducing overvoltages by using appropriate overvoltage limiting devices.
- 2 The rated current of the equipment or the temperature rise specified in table 15 can be corrected for altitudes exceeding 1 000 m by using appropriate factors given in table 2, columns (2) and (3) respectively. Use one correction factor from columns (2) or (3), but not both for any one application.

3.2 *Special service conditions*

By agreement between manufacturer and user, high-voltage fuses may be used under conditions different from the conditions given in 3.1.

For any special service condition, the manufacturer shall be consulted.

## 4 Definitions

For the purpose of this standard, the terms defined in IEC 50(151) and IEC 50(441), as indicated by the reference numbers in brackets, apply together with those defined in this clause.

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

4.1 *Electrical characteristics*4.1.1 **rated value** [151-04-03]4.1.2 **rating** [151-04-04]

SIST HD 636 S1:1998

[https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-](https://standards.iteh.ai/catalog/standards/sist/ce585264-6341-400e-876d-7e1f680b597f/sist-hd-636-s1-1998)

7e1f680b597f/sist-hd-636-s1-1998

4.1.3 **prospective current (of a circuit and with respect to a fuse)** [441-17-01]4.1.4 **prospective peak current** [441-17-02]4.1.5 **prospective breaking current** [441-17-06]4.1.6 **breaking capacity** [441-17-08]4.1.7 **pre-arcing time; melting time** [441-18-21]4.1.8 **arcing time** [441-17-37]4.1.9 **operating time (total clearing time)** [441-18-22]4.1.10  **$I^2t$  = Joule integral** [441-18-23]4.1.11 **virtual time:** The value of the Joule integral divided by the square of the value of the prospective current.

NOTE – The values of virtual times usually stated for a fuse-link in the scope of this standard are the values of the pre-arcing time.

4.1.12 **time-current characteristic** [441-17-13]4.1.13 **recovery voltage** [441-17-25]

- 4.1.14 **transient recovery voltage (abbreviation TRV)** [441-17-26]
- 4.1.15 **power frequency recovery voltage** [441-17-27]
- 4.1.16 **prospective transient recovery voltage (of a circuit)** [441-17-29]
- 4.2 **Fuses and their component parts** (see figure 1)
  - 4.2.1 **fuse** [441-18-01]
  - 4.2.2 **terminal (as a component)** [151-01-03]
  - 4.2.3 **fuse-base (fuse-mount)** [441-18-02]
  - 4.2.4 **fuse-base contact** [441-18-03]
  - 4.2.5 **fuse-carrier** [441-18-13]
  - 4.2.6 **fuse-carrier contact** [441-18-05]
  - 4.2.7 **fuse-holder** [441-18-14]
  - 4.2.8 **fuse-link** [441-18-09]
  - 4.2.9 **fuse-link contact** [441-18-04]
  - 4.2.10 **fuse-element** [441-18-08]
  - 4.2.11 **renewable fuse-link** [441-18-16]
  - 4.2.12 **refill unit** [441-18-15]
- 4.3 **Additional terms**
  - 4.3.1 **expulsion fuse** [441-18-11]
  - 4.3.2 **drop-out fuses** [441-18-07]
  - 4.3.3 **homogeneous series (of fuse-link)** [441-18-34]
  - 4.3.4 **isolating distance (for a fuse)** [441-18-06]

NOTE - See also 8.6.1.1, 8.6.1.3 and 8.6.3.1.

**4.3.5 speed designation of fuse-links (for expulsion fuses):** A designation, expressed by letters, such as K or T, associated with the ratio between the values of the pre-arcing currents at two specified values of pre-arcing times, for example, 0,1 s and 300 s (or 600 s).

**4.3.6 interchangeability of fuse-links:** Compatibility of dimensions and pre-arcing time-current characteristics between different manufacturer's expulsion fuse-links, permitting use of such fuse-links in fuse-carriers of alternative manufacturers, without significant alteration of the pre-arcing time-current characteristics.

NOTE - It should be noted that the protective performance provided by the combination of the selected fuse-link and the selected fuse-carrier can only be assured by performance test on the specific combination.

**4.3.7 distribution fuse-cutout:** A drop-out fuse comprising a fuse-base, a fuse-carrier lined with arc-quenching material, and a fuse-link having a flexible tail, and a small diameter arc-quenching tube surrounding the fuse-element.



**4.3.8 open-link cutout:** An expulsion-fuse that does not employ a fuse-carrier and, in which the fuse-base directly receives an open-link fuse-link or a disconnecting blade.

**4.3.9 open-link fuse-link:** A replaceable part or assembly comprised of the fuse-element and fuse tube, together with the parts necessary to confine and aid in extinguishing the arc, and the parts to connect it directly into the fuse clips of the open-link cutout fuse-base.

## 5 Classification and designation

### 5.1 Classification

For a given rating, three classes of expulsion fuses are defined according to their ability to comply with the TRV requirements of the following tables for test-duties 1, 2, 3 and 4 (see annex A for guidance on correct application):

- a) Class A – tables 8 and 13;
- b) Class B – tables 9 and 14;
- c) Class C – tables 10, 11, 12 and 14.

#### NOTES

1 These classes are approximately in line with the TRV requirements in the following standards:

Class A – IEC 282-2 (1970)\*: (Class 2 fuses), and ANSI C 37-42 (Distribution cutouts)

Class B – IEC 282-2 (1970)\*: (Class 1 fuses), and ANSI C 37-46 (Power fuses)

Class C – IEC 56: (High-voltage circuit-breakers)

2 Parameters used to define TRV are described in figures 6 and 7

### 5.2 Fuse-link speed designation

Certain types of fuse-link are designated as, e.g. "type T" or "type K", according to their compliance with specific pre-arcing time-current characteristics.

Such designation may assist in allowing interchangeability (see 4.3.8) between alternative manufacturer's fuse-links for use in distribution fuse-cutouts.

- a) Designation type K: high-speed fuse-links with pre-arcing time-current characteristics in accordance with table 15.
- b) Designation type T: low-speed fuse-links with pre-arcing time-current characteristics in accordance with table 16.

\* First edition of IEC 282-2.