

BS 1362:1973+A3:2021



BSI Standards Publication

General purpose fuse links for domestic and similar purposes (primarily for use in plugs) — Specification

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 28 February 1973. It was prepared by Technical Committee PEL/32, *Fuses*. A list of organizations represented on this committee can be obtained on request to the committee manager.

Supersession

BS 1362:1973+A3:2021 supersedes BS 1362:1973 incorporating Amendment No.1 and Amendment No. 2, which is withdrawn.

Information about this document

This revision of BS 1362 incorporates a new arrangement of the clauses. This has been done in order to agree as closely as possible with the arrangement and content of Publication 269-1 of the International Electrotechnical Commission, as modified for fuses for domestic and similar purposes.

To ensure interchangeability, the dimensions of the fuse links are unchanged but, as with other quantities, are now given in metric units.

The electrical characteristics of the fuse links are the same as in the previous edition of this standard, but further standardization has been achieved by specifying time/current zones within which these characteristics of any fuse link must lie. The testing procedure, particularly for the breaking capacity tests, has been improved and clarified. A mechanical (tumbling) test and an annex on the measurement of power factor have been added.

Fuses within the scope of this standard are not sensitive to normal electromagnetic disturbances, and therefore no immunity tests are required.

Significant electromagnetic disturbance generated by a fuse is limited to the instant of its operation. Provided that the maximum arc voltages during operation to the type test comply with the requirements of the clause in the standard specifying maximum arc voltage, the requirements for electromagnetic compatibility are deemed to be satisfied.

Text introduced or altered by Amendment No. 3 is indicated in the text by tags  . Previous amendments and minor editorial changes are not indicated.

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Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the Shorter Oxford English Dictionary is used (e.g. “organization” rather than “organisation”).

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1 Scope

This British Standard specifies dimensions and performance requirements for general purpose cartridge fuse links of current ratings not exceeding 13 A for domestic and similar purposes (primarily for use in plugs complying with the requirements of BS 1363) on declared supply voltages not exceeding 250 V (see 4.5) at a nominal frequency of 50 Hz or 60 Hz.

It does not cover fuse bases or fuse holders for use with these fuse links.

 Text deleted 

The object of this specification is to standardize the characteristics, construction, tests and markings of fuse links coming within its scope. In particular to standardize:

- the rated voltage;
- the rated currents;
- the rated power loss;
- the time/current zones and conventional currents;
- the rated breaking capacity; and
- the dimensions.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this British Standard, the following definitions apply.

3.1 Fuses and their component parts

3.1.1 fuse

device that, by the fusion of one or more of its specially designed and proportioned components, opens the circuit in which it is inserted and breaks the current when this exceeds a given value for a sufficient time

NOTE The fuse comprises all the parts that form the complete device.

3.1.2 fuse base

fixed part of a fuse provided with terminals for connection to the system

NOTE The fuse base comprises all the parts necessary for insulation.

3.1.3 fuse carrier

movable part of a fuse designed to carry the fuse link

NOTE The fuse carrier does not include any fuse link.

3.1.4 fuse element

part of a fuse designed to melt when the fuse operates

3.1.5 fuse holder

combination of a fuse base with its fuse carrier

3.1.6 fuse link

part of a fuse including the fuse element which requires replacement by a new fuse link after the fuse has operated and before the fuse can be put back into service

3.1.7 fuse link contact

conducting part of fuse link designed to engage with a fuse base contact or with a fuse carrier contact

3.2 General terms

3.2.1 ambient air temperature

temperature, determined under prescribed conditions, of the air surrounding the complete device (e.g. for fuses installed inside an enclosure it is the temperature of the air outside the enclosure)

3.2.2 current limiting fuse link

fuse link that, during and by its operation in a specified current range, limits the current to a substantially lower value than the peak value of the prospective current

3.2.3 enclosed (cartridge) fuse link

fuse link in which the fuse element is totally enclosed, so that during operation it cannot produce any harmful external effects due to the development of an arc, the release of gas or the ejection of flame or metallic particles

3.2.4 general purpose fuse link

current limiting fuse link capable of breaking under specified conditions all currents which cause melting of the fuse element, up to its rated breaking capacity

3.3 Characteristic quantities

3.3.1 arcing time

interval of time between the instant of the initiation of the arc and the instant of final arc extinction

3.3.2 breaking capacity

prospective breaking current that a fuse is capable of breaking at a stated recovery voltage under prescribed conditions

3.3.3 conventional fusing current (I_f)

value of current specified as that which causes operation of fuse link within a specified time (conventional time)

3.3.4 conventional non-fusing current (I_{nf})

value of current specified as that which the fuse link is capable of carrying for a specified time (conventional time) without melting

3.3.5 cut-off characteristic

curve giving the cut-off current as a function of the prospective breaking current under stated conditions of operation

NOTE In the case of a.c., the values of the cut-off currents are the maximum values reached whatever the degree of asymmetry. In the case of d.c., the values of the cut-off currents are the maximum values reached, related to the time constant as specified.

3.3.6 cut-off current

maximum instantaneous value reached by the current during the breaking operation of the fuse, when the fuse operates in such a manner as to prevent the current from reaching the otherwise attainable maximum

3.3.7 I^2t

integral of the square of the current for a given time interval:

$$\boxed{A_3} \quad I^2t = \int_{t_0}^{t_1} i^2 dt \quad (1) \quad \boxed{A_3}$$

NOTE I^2t values usually stated for fuse links are the pre-arcing I^2t and operating I^2t extending over the pre-arcing time and the operating time respectively.

3.3.8 I^2t characteristic

curve giving I^2t values (pre-arcing I^2t and/or operating I^2t) as a function of prospective current under stated conditions of operation

3.3.9 operating time

sum of the pre-arcing time and the arcing time

3.3.10 pre-arcing time (melting time)

time between the commencement of a current large enough to cause the fuse element(s) to melt and the instant when an arc is initiated

3.3.11 power-frequency recovery voltage

recovery voltage after the transient voltage phenomena have subsided

NOTE The power-frequency recovery voltage may be referred to as a percentage of the rated voltage.

3.3.12 power loss of a fuse link

power loss in a fuse link carrying rated current under specified conditions, measured after the fuse link has attained a steady temperature

3.3.13 prospective breaking current

prospective current at a time corresponding to the instant of the initiation of the arc in a fuse during a breaking operation

3.3.14 prospective current of a circuit (with respect to a fuse)

current that would flow in a circuit if a fuse situated therein were replaced by a conductor of negligible impedance without any other change in the circuit or of the supply

3.3.15 rated values

terms employed to designate the characteristic values that together define the working conditions upon which the tests are based and for which the equipment is designed. For fuses the rated values usually stated are the voltage, current and breaking capacity

3.3.16 recovery voltage

voltage which appears across the terminals of a fuse after the breaking of the current

NOTE This voltage may be considered in two successive intervals of time, one during which transient voltage exists (see [3.3.20](#)), followed by a second one during which the power-frequency recovery voltage (see [3.3.11](#)) alone exists.