
British Standard

Cartridge fuses for voltages up to and including 1000 V a.c. and 1500 V d.c.

Part 2. Specification for fuses for use by authorized persons (mainly for industrial application)

Section 2.2 Additional requirements for fuses with fuse-links for bolted connections

(Identical with section II of IEC 269-2-1)

Coupe-circuit pour des tensions inférieures ou égales à 1000 V en courant alternatif et 1500 V en courant continu

Partie 2. Coupe-circuit destinés à être utilisés par des personnes habilitées (principalement pour des applications industrielles)

Section 2.2 Prescriptions complémentaires pour les coupe-circuit utilisant des éléments de remplacement à platines

Patronensicherungen für Gleichspannungen bis 1500 V und Wechselspannung bis 1000 V

Teil 2. Sicherungen zum Gebrauch durch Elektrofachkräfte bzw. elektrotechnisch unterwiesene Personen (hauptsächlich für den industriellen Gebrauch)

Abschnitt 2.2 Zusätzliche Anforderungen für Sicherungen mit Sicherungseinsätzen für Schraubenverbindungen

Foreword

This Section of BS 88 has been prepared under the direction of the Power Electrical Engineering Standards Committee. Together with Section 2.1 it supersedes BS 88 : Part 2 : 1985, which is withdrawn. For ease of reproduction the English text of IEC 269-2-1 section II has been used. IEC 269-2-1 is divided into three sections, each dealing with a specific example of standardized fuse for use by authorized persons:

- Section I ‘Fuses with fuse-links with blade contacts’;
- Section II ‘Fuses with fuse-links for bolted connections’;
- Section III ‘Fuses with fuse-links having cylindrical contact caps’.

This Section of BS 88 is identical with section II of IEC 269-2-1, published by the International Electrotechnical Commission (IEC). It should be read in conjunction with BS 88 : Part 1 and BS 88 : Section 2.1 as the clauses and tables have been numbered so as to correspond with these publications.

Terminology and conventions

Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following. The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Cross-references

International standard	Corresponding British Standard
IEC 269-1 : 1986	BS 88 Cartridge fuses for voltages up to and including 1000 V a.c. and 1500 V d.c. Part 1 : 1988 Specification of general requirements (Identical)
IEC 269-2 : 1973	Section 2.1 : 1988 Supplementary requirements (Identical)
IEC 529 : 1976	BS 5490 : 1977 Specification for classification of degrees of protection provided by enclosures (Identical)

NOTE. *Textual error.* When adopting the text of the international standard the following error was discovered. In table III, the title should read ‘Gates for specified pre-arcing times of “gG” fuse-links’. It has been marked in the text and has been reported to IEC in a proposal to amend the text of the international standard.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

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Cartridge fuses for voltages up to and including 1 000 V a.c. and 1 500 V d.c.

Part 2. Specification for fuses for use by authorized persons (mainly for industrial application)
Section 2.2 Additional requirements for fuses with fuse-links for bolted connections

1. General

Fuses for use by authorized persons according to the following sections shall also comply with all sub-clauses of:

IEC Publication 269-1: Low-voltage fuses, Part 1: General requirements, and

IEC Publication 269-2: Low-voltage fuses, Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial applications).

1.1 Scope

The following additional requirements apply to fuses with fuse-links having bolted connections. Such fuses have rated currents up to and including 1 250 A and rated voltages up to and including 660 V a.c. and up to and including 500 V d.c.

5.3.1 Rated current of the fuse-link

The maximum preferred rated currents are given in Figures 1 and 1a.

5.3.2 Rated current of the fuse-holder

The maximum preferred rated currents for the fuse-holder are given in Figure 2.

5.5 Rated power dissipation of a fuse-link and rated power acceptance of a fuse-holder

The maximum values of power dissipation of fuse-links are given in Figure 1.

The maximum values of rated power acceptance of fuse-holders are given in Figure 2.

5.6 Limits of time-current characteristics

5.6.1 Time-current characteristics, time-current zones and overload curves

In addition to the limits of pre-arcing time given by the gates and the conventional times and currents, the time-current zones, excluding manufacturing tolerances, are given in Figures 3 and 4. The tolerance on time-current characteristics shall not deviate by more than $\pm 10\%$ in terms of current.

5.6.2 Conventional times and currents

The conventional times and currents, in addition to the values of IEC Publication 269-1 are given in Table II.

TABLE II
Conventional time and current for "gG" fuse-links

Rated current I_n (A)	Conventional time (h)	Conventional current	
		I_{nf}	I_f
$I_n < 16$	1	$1.25 I_n$	$1.6 I_n$

5.6.3 Gates

For "gG" fuse-links the gates given in Table III and in IEC Publication 269-1 apply.

TABLE III
Gates for specified pre-arcing and operating times of "gG" fuse-links

I_n (A)	I_{min} (10 s) (A)	I_{max} (5 s) (A)	I_{min} (0.1 s) (A)	I_{max} (0.1 s) (A)
2	3.4	5.0	4.6	7.5
4	6.5	10.5	10.0	18.5
6	10.0	18.0	17.0	35.0
10	18.0	36.0	35.0	60.0

5.7.2 Rated breaking capacity

The rated breaking capacity shall be 80 kA a.c. and 40 kA d.c.

7.1 Mechanical design

The dimensions of fuse-links and fuse-bases are given in Figures 1 and 2.

7.1.2 Connections including terminals

Under consideration.

7.9 Protection against electric shock

Where standardized fuse-holders according to Figure 2 are used the degree of protection against electric shock shall be at least IP-2X for all three stages.

8.3 Verification of temperature rise and power dissipation

8.3.1 Arrangement of the fuse

The test arrangement for fuse-links is given in Figure 5. The test arrangement shall be mounted vertically.

8.3.3 Measurement of the power dissipation of the fuse-link

The points of measurement of power loss are given in Figure 5.

8.4 Verification of operation

8.4.1 Arrangement of the fuse

The test arrangement of the fuse-link is given in Figure 5. The test arrangement shall be mounted vertically.

*See foreword for details of textual error.

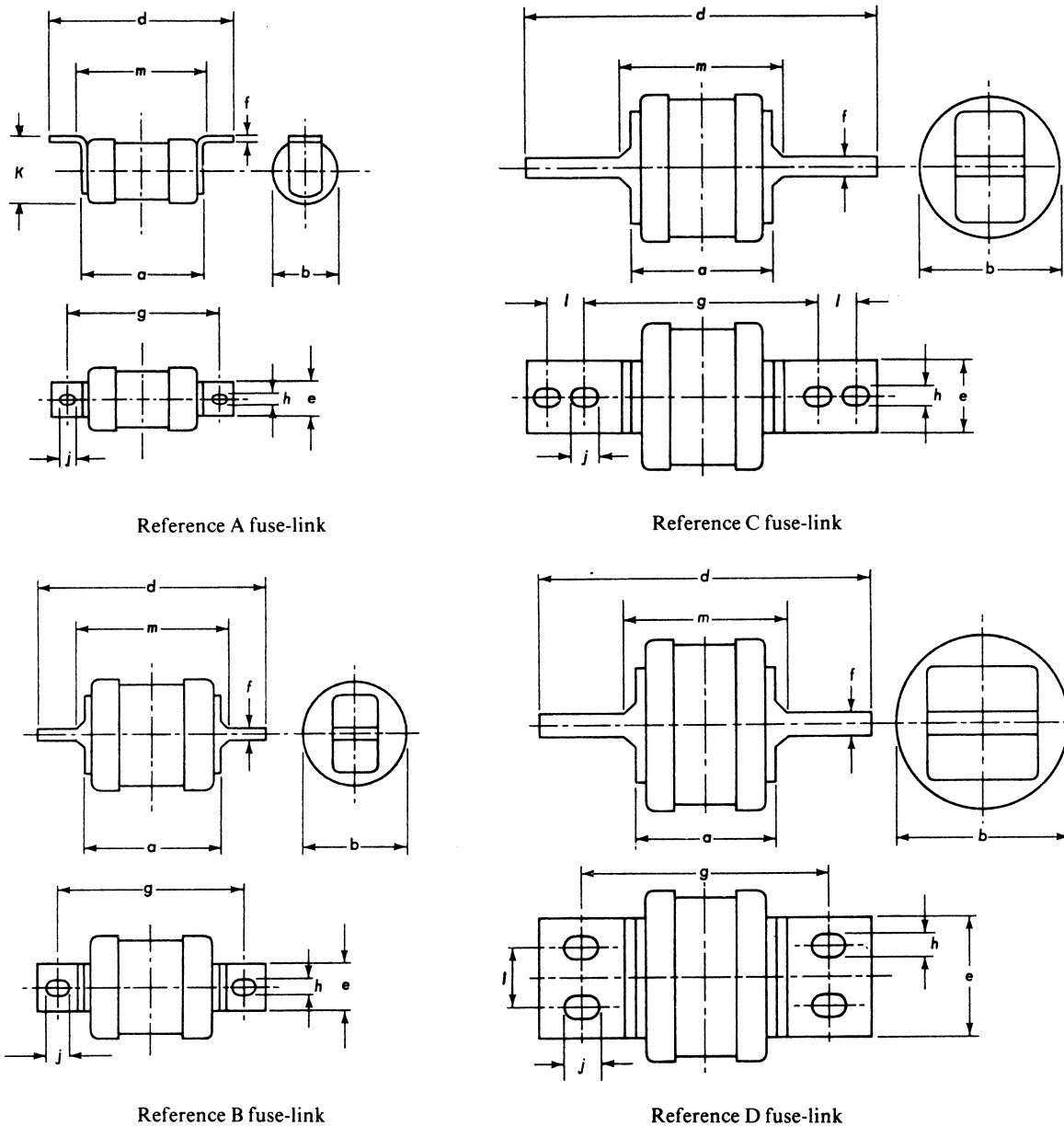
8.5 Verification of breaking capacity

8.5.1 Arrangement of the fuse

The test arrangement of the fuse-link is given in Figure 6.

8.5.8 Acceptability of test results

The requirements of IEC Publication 269-1 apply and in addition fuse-links shall operate without the melting of the fine fuse wire and without mechanical damage to the rig.



The drawings are not intended to govern the design of fuse-links except as regards the notes and dimensions shown.

FIG. 1 – Fuse-links for bolted connection – References A, B, C and D.