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Specification for

High-voltage fuses for the external protection of shunt power capacitors

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- Association of Short Circuit Testing Authorities*
- British Electrical and Allied Manufacturers' Association (BEAMA)
- British Railways Board
- British Steel Corporation
- Department of Energy (Electricity)
- Electrical Contractors' Association
- Electrical Contractors' Association of Scotland
- Electrical Research Association*
- Electricity Supply Industry in England and Wales*
- Engineering Equipment Users' Association
- Institution of Electrical Engineers
- Ministry of Defence*
- National Coal Board
- Trades Union Congress

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- Association of Consulting Engineers
- Association of Supervisory and Executive Engineers
- Electrical Installation Equipment Manufacturers' Association (BEAMA)
- Electrical Power Engineers' Association
- London Transport Executive
- Oil Companies Materials Association

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Committee, was published under the authority of the Executive Board on 29 December 1978

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The following BSI references relate to the work on this standard:
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Foreword

This British Standard, which has been prepared under the direction of the Power Electrical Engineering Standards Committee, substantially agrees with IEC Publication 549 “*High-voltage fuses for the external protection of shunt power capacitors*”. It has not been published as a dual-numbered standard because IEC 549 refers to IEC 282-2 for the technical requirements for expulsion fuses whereas this specification refers to BS 2692-2 where the technical requirements are different.

Because of the very specialized nature of this application of fuses, practical difficulties may in some cases be experienced in obtaining certain of the test facilities necessary to establish complete compliance with this standard. Although in such an event the manufacturer and the user may, having taken account of available test evidence and service experience, agree to waive compliance with the relevant requirements, the fuses concerned cannot then be claimed as complying with the requirements of the standard.

Terminology. For ease of reproduction the text of the International Standard has been used as the basis of this standard and some terminology is therefore not identical with that used in British Standards.

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 in the type test comply with the requirements of the clause in this standard specifying maximum arc voltage, the requirements for electromagnetic compatibility are deemed to be satisfied.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Chapter I

1 General

1.1 Scope

This standard applies to external fuses used with high-voltage power capacitors according to BS 1650.

Fuses according to this standard are intended to clear either faults inside a capacitor unit to permit continued operation of the remaining parts of the bank in which the unit is connected (unit fuses) or faults on the whole capacitor bank to isolate the bank from the system (line fuses).

These fuses are not a substitute for a mechanical switching device, but when forming a part of a mechanical switching device such as a fuse-switch or a fuse-disconnector, they shall comply with this standard.

When fuses are used for the external protection of a capacitor unit or a capacitor bank (line fuses), their voltages and breaking ratings shall be adequate for the system.

Fuses according to this standard shall comply with the requirements of BS 2692-1 or BS 2692-2, except those which are specifically excluded in this standard.

1.2 Object

The object of this standard is to formulate uniform requirements and test procedures regarding performance and testing of fuses intended to be used for capacitor protection.

2 Definitions

2.1

capacitor element (or element)

an indivisible part of a capacitor consisting of electrodes separated by a dielectric

NOTE The word "element" in this standard is used according to the definition of BS 1650.

2.2

capacitor unit (or unit)

an assembly of one or more capacitor elements in a single container with terminals brought out

2.3

capacitor bank (or bank)

a group of units, connected electrically to each other, e.g. a three-phase bank may be composed of three single-phase units

2.4

capacitor

in this standard, the word "capacitor" is used when it is not necessary to lay particular stress upon the different meanings of the word "capacitor unit" or "capacitor bank"

2.5

capacitor equipment

an assembly of capacitor units and accessories suitable for connection to a circuit

2.6

bank protection

common name for all protective equipment, except the internal fuses, for a capacitor bank or part thereof

2.7

unbalance protection

a device sensitive to capacitance difference between branches of the bank normally in balance with each other

NOTE The capacitance difference may be due to blown fuse(s) or insulation failure within the bank.

2.8

unit fuse

fuse intended to be used for the protection of a capacitor unit which forms a part of a capacitor bank