

Specification for

High-voltage busbars and busbar connections

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Power Electrical Engineering Standards Policy Committee (PEL/-) to Technical Committee PEL/92, upon which the following bodies were represented:

- ASTA Certification Services
- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA Ltd.)
- British Railways Board
- Copper Development Association
- Department of the Environment (Property Services Agency)
- ERA Technology Ltd.
- Electricity Industry in United Kingdom
- GAMBICA (BEAMA Ltd.)
- Health and Safety Executive
- Transmission and Distribution Association (BEAMA Limited)

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Foreword

This British Standard has been prepared under the direction of the Power Electrical Engineering Standards Policy Committee. This standard takes into account current British and International Standards and supersedes BS 159:1957 which is withdrawn.

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.

1 Scope

This British Standard specifies requirements for both enclosed and open busbars and busbar connections which are components of a.c. high-voltage electrical systems (above 1 kV) and are composed of metal such as copper or aluminium, with air, oil, gas, solid or semi-solid materials as principal insulation.

This British Standard can apply, for aspects other than frequency, to high voltage d.c. busbars and busbar connections (above 1.5 kV) which have similar characteristics to those for a.c.

Insulators such as bushings and supports can comprise part of the assembly, and detailed requirements for such insulators are specified in BS 223.

For degrees of protection for enclosures, reference should be made to BS 5490

The busbars in this standard can also form a component of metal enclosed switchgear (see BS 5227 and BS 5524).

This British Standard does not apply to:

- insulated cables which can form a part of busbars and busbar connections;
- low-voltage busbars which are specified in BS 5486-1.

For the purpose of this standard the requirements for the ratings and type tests of BS 6581 for switchgear and controlgear are considered to apply to both busbars and busbar connections.

In addition to the definitive requirements, this British Standard also requires the items detailed in clause 9 to be documented. For compliance with this British Standard, both the definitive requirements and the documented items have to be satisfied.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

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

2.1 busbar

a conductor with associated connections, joints and insulated supports forming a common electrical connection between a number of circuits or individual pieces of apparatus

2.2 busbar connection

a conductor that forms the electrical connection between a busbar and an individual piece of apparatus that is within reasonable proximity

2.3

open busbar

a busbar that is not provided with a protective cover

2.4

enclosed busbar

a busbar that is contained in a duct or casing of any material. When the material is metal the term metal-enclosed is used

2.5

outdoor busbar

an open busbar or enclosed busbar suitable for installation in the open-air, i.e. capable of withstanding wind, rain, snow, dirt deposits, condensation, ice and hoar frost

2.6

indoor busbar

an open busbar or an enclosed busbar designed solely for installation within a building or other housing, where the busbar is protected against wind, rain, snow, abnormal dirt deposits, abnormal condensation, ice and hoar frost

2.7

air-insulated busbar

a busbar which, except at points of support, is designed with air as the principal dielectric. It can be covered with insulation material

2.8

gas-insulated busbar

an enclosed busbar in which the insulation is achieved by insulating gas other than atmospheric air

2.9

oil-immersed busbar

an enclosed busbar that is totally immersed in an insulating oil

2.10

compound-immersed busbar

an enclosed busbar that is totally immersed in a solid or semi-solid insulating compound

2.11

bushing type busbar

an enclosed busbar which may consist of one or several jointed sections of tubular or solid conductor, the sections being covered with solid insulation with an external earthed sheath. The joint between sections can be air insulated, or immersed in oil or insulating compound. The solid insulation of the sections can include coaxial conducting layers for the control of internal or external electrical stresses (see BS 223)