



BS 4999 : Part 107 : 1987
IEC 34 – 7 : 1972

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British Standard

General requirements for rotating electrical machines

Part 107. Specification for symbols for types of construction
and mounting arrangements

Règles générales pour les machines électriques tournantes

Partie 107. Symboles pour les formes de construction et les dispositions de montage — Spécifications

Allgemeine Anforderungen an umlaufende elektrische Maschinen

Teil 107. Kurzzeichen für Bauformen und Aufstellung der Maschinen

British Standards Institution

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National foreword

This Part of BS 4999 has been prepared under the direction of the Power Electrical Engineering Standards Committee and supersedes BS 4999 : Part 22 : 1977 which is withdrawn.

This Part has been issued to implement the decision to renumber all the Parts of BS 4999 to bring the Part numbers more into line with those of IEC Publication 34. No changes have been made to the text of BS 4999 : Part 22 : 1977.

This Part is identical with IEC Publication 34 'Rotating electrical machines' Part 7 : 1972 'Symbols for types of construction and mounting arrangements of rotating electrical machinery', published by the International Electrotechnical Commission.

Terminology and conventions. The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

Wherever the word 'Recommendation' appears, referring to this standard, it should be read as 'Part of BS 4999'.

Cross-reference

International standard	Corresponding British Standard
IEC 34-6 : 1969	BS 4999 General requirements for rotating electrical machines Part 106 : 1987 Classification of methods of cooling (Technically equivalent)

The Technical Committee has reviewed the provisions of IEC 34-5 : 1981 to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard. A related British Standard is BS 4999 : Part 105 : 1987 'Classification of degrees of protection provided by enclosures for rotating machinery'.

Textual errors. When adopting the text of the international standard, the textual errors listed below were discovered. They have been marked in the text and have been reported to the International Electrotechnical Commission in a proposal to amend the text of the international standard.

IEC reference	Original IEC text	Text to be substituted
Code I, clause 3, symbol B8	Mounted on the ceiling Feet to the right viewing from drive end	Ceiling mounted
Code I, clause 3, symbol B9	As B5 or B14 but without endshields and bearing at drive end	As B5 or B14 but without endshield and bearing at drive end
Code I, clause 4, symbol V9	As V3 or V19 but without flange bearing at drive end	As V3 or V19 but without flange and bearing at drive end
Code II, clause 4, first column, 15th item	IM 3015	IM 3115

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

EXPLANATORY NOTE

The symbolization for types of construction and mounting arrangements of rotating machinery consists of two codes: Code I and Code II.

Code I concerns a reduced number of possibilities.

Code II is a general code.

One can use, on request, either the first or the second code.

It is assumed that experience will allow in future only one code to be kept.

In order to avoid misunderstanding, an appendix at the end of each code gives the relation between the symbols of the two codes.

When indicating mounting arrangements according to these codes, the IP requirements (see IEC Publication 34-5) and IC requirements (see IEC Publication 34-6) shall be observed*.

* When drainage holes are required, the manufacturer must make suitable arrangements for these to meet the requirements of the IP class in all positions indicated by the IM designation valid for the machine. It is assumed that the user will select the correct drainage holes suitable for the conditions under which the machine is operated.

British Standard

General requirements for rotating electrical machines

Part 107. Specification for symbols for types of construction and mounting arrangements

CODE I**1. General****1.1 Scope**

This Code I concerns only machines with endshield bearings and only one shaft extension.

1.2 Designation

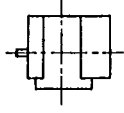
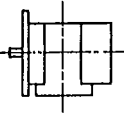
The designation consists of the letters IM, indicating "International Mounting" followed by one capital and a numeral according to Clauses 3 and 4.

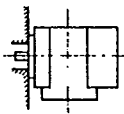
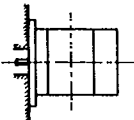
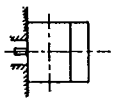
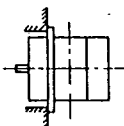
2. Definition

When the word "substructure" is used, it is meant, for example, for baseplates, foundations, slide rails, pedestals, etc.

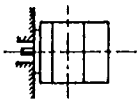
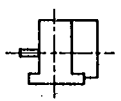
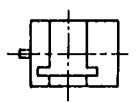
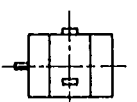
3. Machines with horizontal shaft

The designation of these machines consists of the capital letter B followed by a numeral according to the following table.

Symbol	Figure	Bearing	Frame	Shaft extension	Generalities concerning the construction	Attachment or mounting
B 3		2 endshields	With feet	Free shaft extension	—	Mounted on substructure
B 35		2 endshields	With feet	Free shaft extension	Endshield flange with access to back. Shaft extension at flange-end	Mounted on substructure by feet with additional mounting on flange

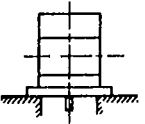
Symbol	Figure	Bearing	Frame	Shaft extension	Generalities concerning the construction	Attachment or mounting
B 34		2 endshields	With feet	Free shaft extension	With endshield spigot. No access to back. Shaft extension at flange-end	Mounted on substructure by feet with additional mounting on flange
B 5		2 endshields	Without feet	Free shaft extension	Endshield flange with access to back. Shaft extension at flange-end	Supported by flange
B 6		2 endshields	With feet	Free shaft extension	As B 3 but endshields turned through 90° (if sleeve bearings)	Mounted on a wall. Feet to the left viewing from drive end
B 7		2 endshields	With feet	Free shaft extension	As B 3 but endshields turned through 90° (if sleeve bearings)	Mounted on a wall. Feet to the right viewing from drive end
B 8		2 endshields	With feet	Free shaft extension	As B 3 but endshields turned through 180° (if sleeve bearings)	Mounted on the ceiling. Feet to the right viewing from drive end *
B 9		1 endshield	Without feet	Free shaft extension	As B 5 or B 14 but without endshields and bearing at drive end	Mounted by end face of frame at drive end *
B 10		2 endshields	Without feet	Free shaft extension	Special flange at drive end	Face mounted. Face on drive side

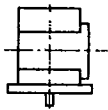
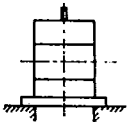
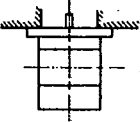
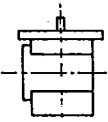
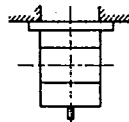
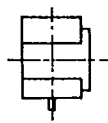
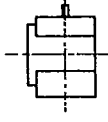
*See national foreword for details of textual errors.

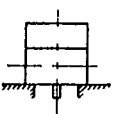
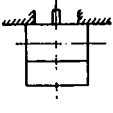
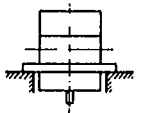
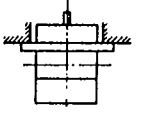
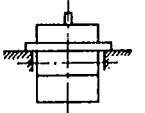
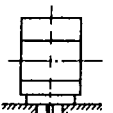
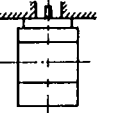
Symbol	Figure	Bearing	Frame	Shaft extension	Generalities concerning the construction	Attachment or mounting
B 14		2 endshields	Without feet	Free shaft extension	With endshield spigot. No access to back. Flange at drive end	Flange mounted
B 15		1 endshield	With feet	Free shaft extension	As B 3 but without endshield and bearing at drive end	Mounted on substructure by feet with additional mounting on face of frame at drive end
B 20		2 endshields	With raised feet	Free shaft extension	—	Mounted inside a substructure
B 30		2 endshields	Without feet	Free shaft extension	3 or 4 bosses on 1 endshield, 2 endshields or on frame	*Pad-mounted by bosses

4. Vertical machines

The designation of these machines consists of the capital letter V followed by a numeral according to the following table:

Symbol	Figure	Bearing	Frame	Shaft extension	Generalities concerning the construction	Attachment or mounting
V 1		2 endshields	Without feet	Free shaft extension at bottom	Endshield flange with access to back. Flange at drive end	Supported by flange at bottom

Symbol	Figure	Bearing	Frame	Shaft extension	Generalities concerning the construction	Attachment or mounting
V 15		2 endshields	With feet	Free shaft extension at bottom	Endshield flange or endshield spigot access or non-access to back. Flange at drive end	Mounted on a wall with additional mounting on flange at bottom
V 2		2 endshields	Without feet	Free shaft extension at top	Endshield flange with access to back. Flange at non-drive end	Supported by flange at bottom
V 3		2 endshields	Without feet	Free shaft extension at top	Endshield flange with access to back. Flange at drive end	Supported by flange at top
V 36		2 endshields	With feet	Free shaft extension at top	Endshield flange with access to back. Flange at drive end	Wall-mounted or on a substructure with additional flange at top
V 4		2 endshields	Without feet	Free shaft extension at bottom	Endshield flange with access to back. Flange at non-drive end	Supported by flange at top
V 5		2 endshields	With feet	Free shaft extension at bottom	As B 3	Wall-mounted or on a substructure
V 6		2 endshields	With feet	Free shaft extension at top	—	Wall-mounted or on a substructure

Symbol	Figure	Bearing	Frame	Shaft extension	Generalities concerning the construction	Attachment or mounting
V 8		1 endshield	Without feet	Free shaft extension at bottom	As V 1 or V 18 but without flange and bearing at drive end	Supported by face at bottom of frame at drive end
* V 9		1 endshield	Without feet	Free shaft extension at top	As V 3 or V 19 but without flange bearing at drive end	Supported by face at top of frame at drive end
V 10		2 endshields	Without feet	Free shaft extension at bottom	Endshield flange with access to back. Flange at drive end	Supported by flange face at bottom at drive end side
V 14		2 endshields	Without feet	Free shaft extension at top	Endshield flange with access to back. Flange at drive end	Supported by flange at top at drive end side
V 16		2 endshields	Without feet	Free shaft extension at top	Endshield flange with access to back. Flange at drive end	Supported by flange at top with face underneath
V 18		2 endshields	Without feet	Free shaft extension at bottom	With endshield spigot. No access to back. Flange at drive end	Supported by face at bottom
V 19		2 endshields	Without feet	Free shaft extension at top	With endshield spigot. No access to back. Flange at drive end	Supported by face at top