

Rotating electrical machines —

Part 6: Methods of cooling (IC Code)

The European Standard EN 60034-6:1993 has the status of a
British Standard

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Denmark	Netherlands
Finland	Norway
France	Portugal
Germany	Spain
Greece	Sweden
Iceland	Switzerland
Ireland	United Kingdom

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 February 1994

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Amendments issued since publication

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Contents

	Page
Cooperating organizations	Inside front cover
National foreword	ii
Foreword	2
Text of EN 60034-6	3
National annex NA (informative) Committees responsible	Inside back cover

National foreword

This British Standard has been prepared under the direction of the Power Electrical Engineering Standards Policy Committee and is the English language version of EN 60034-6:1993 *Rotating electrical machines — Part 6: Methods of cooling (IC Code)*, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 34-6:1991 published by the International Electrotechnical Commission (IEC).

When this European Standard was being prepared an editorial modification was made to the English version of IEC 34-6:1991. In 3.4 the example was replaced by:

“Example: Generator IC81W/Exciter IC75W (simplified)
Generator IC8A1W7/Exciter IC7A5W7 (complete)”

This British Standard supersedes BS 4999-106:1987.

The foreword of the European Standard makes reference to the date of withdrawal, now, of the relevant national standard. In this case the relevant national standard is BS 4999-106:1987 which will be withdrawn on 1 September 1994.

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, the EN title page, pages 2 to 16, 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.

English version

Rotating electrical machines Part 6: Methods of cooling (IC Code)

(IEC 34-6:1991)

Machines électriques tournantes
Partie 6: Modes de refroidissement (Code IC)
(CEI 34-6:1991)

Umlaufende elektrische Maschinen
Teil 6: Einteilung der Kühlmethoden (IC-Code)
(IEC 34-6:1991)

This European Standard was approved by CENELEC on 1993-09-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

Foreword

At the request of CENELEC Technical Committee TC 2, Rotating machinery, the text of the International Standard IEC 34-6:1991 was submitted to the CENELEC formal vote for acceptance as a Harmonization Document.

The draft was approved by CENELEC as HD 53.6 S2 on 1993-07-06 and was immediately submitted to a new vote for acceptance as a European Standard.

The document, with some editorial modifications prepared by TC 2, was approved by CENELEC as EN 60034-6 on 1993-09-22.

This European Standard supersedes HD 53.6 S1:1977.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-09-01
- latest date of withdrawal of conflicting national standards (dow) 1994-09-01

For products which have complied with HD 53.6 S1:1977 before 1994-09-01 as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-09-01.

Contents

	Page
Foreword	2
Introduction	3
1 Scope	3
2 Definitions	4
3 Designation system	6
4 Characteristic numeral for circuit arrangement	8
5 Characteristic letter for coolant	9
6 Characteristic numeral for method of movement	9
Annex A (informative) Commonly used designations	11
Annex B (informative) Comparison of examples from the first and second editions of IEC 34-6	15
Table 1 — Circuit arrangement	8
Table 2 — Coolant	9
Table 3 — Method of movement	10
Table A.1 — Examples of open circuits using surrounding or remote medium	12
Table A.2 — Examples of primary circuits closed, secondary circuits open using surrounding medium	13
Table A.3 — Examples of primary circuits closed, secondary circuits open using remote or surrounding medium	14
Table B.1 — Comparison of examples shown in first edition of IEC 34-6 with those in second edition	15
Table B.2 — Comparison of examples shown in the first edition of IEC 34-6 (Annex A, page 11) with those in the second edition of IEC 34-6	16

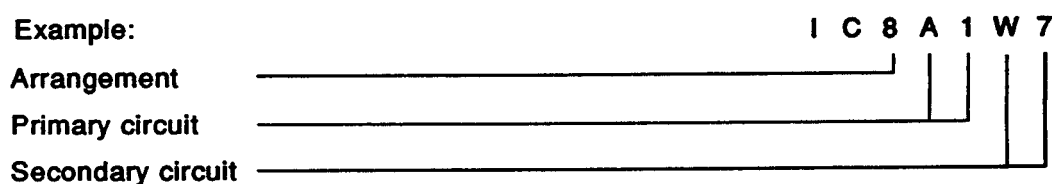
Introduction

In this edition of IEC 34-6, the sequence of numerals and letters following the Code letters IC is changed.

a) New designation system:

- i) A numeral is placed first, indicating the cooling circuit arrangement, being valid for both primary and secondary circuits.
- ii) Each circuit is designated by a letter, indicating the coolant, followed by a numeral indicating the method of movement of the coolant.
- iii) The letter and numeral for the primary coolant are placed first, then those for the secondary coolant.

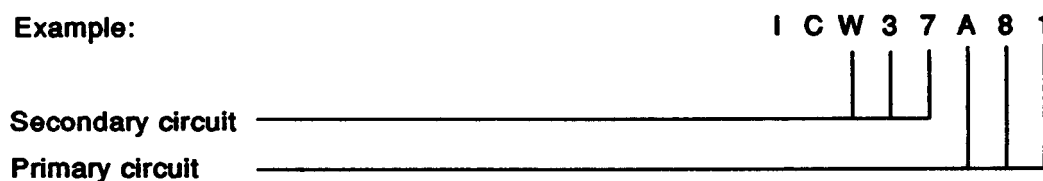
Example:



b) Previous designation system:

- i) The secondary cooling circuit was designated first, then the primary circuit.
- ii) Each circuit was designated by a letter, indicating the coolant followed by a numeral, indicating the circuit arrangement, and then another numeral indicating the method of movement of the coolant.

Example:



This edition also provides for the designation to be simplified, where possible, by the omission of the letter A and of the numeral 7 for movement of secondary coolant under certain conditions.

In addition, new letters F, S, X and Y are provided and defined; the previous letter E, indicating cooling by evaporation of a liquid, has been omitted.

With the introduction of the new designation system, clarifications are required to definitions of open and closed circuit cooling and of dependent and independent components (see clause 2).

The mode of connecting the supply and the delivery of the appropriate control equipment for circulation components, which were specified in the first edition are no longer taken into account in this second edition.

Where the two systems differ, they can be distinguished both in the complete and the simplified code.

Examples of cooling according to the first and the second editions are compared in Annex B.

1 Scope

This part of IEC 34 identifies the circuit arrangements and the methods of movement of the coolant in rotating electrical machines, classifies the methods of cooling and gives a designation system for them.

The designation of the method of cooling consists of the letters "IC", followed by numerals and letters representing the circuit arrangement, the coolant and the method of movement of the coolant.

A complete designation and a simplified designation are defined. The complete designation system is intended for use mainly when the simplified system is not applicable.

The complete designations, as well as the simplified designations, are illustrated in the tables of Annex A for some of the most frequently used types of rotating machines, together with sketches of particular examples.