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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Rotating electrical machines –
Part 8: Terminal markings and direction of rotation

Machines électriques tournantes –
Partie 8: Marques d'extrémité et sens de rotation

IEC 60034-8:2007-06+AMD1:2014-03 CSV (en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60034-8 edition 3.1 contains the third edition (2007-06) [documents 2/1434/FDIS and 2/1451/RVD] and its amendment 1 (2014-03) [documents 2/1732/FDIS and 2/1743/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 60034-8 has been prepared by IEC technical committee 2: Rotating machinery.

The main change with respect to the previous edition is listed below:

– changed terminal markings for d.c. machines in Clause A.4.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts of the IEC 60034 series, under the general title *Rotating electrical machines,* can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

The revision of this part of IEC 60034 provides worldwide uniformity in the electrical connections for rotating electrical machines and applies the recommendations of the basic safety publication IEC 60445 in specifying marking requirements.

These standardized connections will then permit the safe interchange of electric machines with their control and protective devices using standardized terminal markings.

ROTATING ELECTRICAL MACHINES –

Part 8: Terminal markings and direction of rotation

1 Scope

This part of IEC 60034 applies to a.c. and d.c. machines and specifies

a) rules for the identification of winding connection points;
b) marking of winding terminals;
c) direction of rotation;
d) relationship between terminal markings and direction of rotation;
e) terminal marking of auxiliary devices;
f) connection diagrams of machines for common applications.

Turbine-type synchronous machines are excluded from this standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60417-1,*Graphical symbols for use on equipment – Part 1: Overview and application*

IEC 60445, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals and conductor terminations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60034-1 and the following apply.

3.1
terminal marking
permanent identification of the external termination of winding leads or auxiliary leads at the disposal of the user for connection of the machine to the supply or apparatus that indicates the function of the termination

3.2
connecting points
all current transfer points that are used to permanently interconnect winding or winding element ends internally

3.3
tapping points
intermediate connections to a portion of a winding element

3.4
winding leads
insulated conductors that make the electrical connection between a winding and its termination

3.5
winding
assembly of turns or coils having a defined function in an electrical rotating machine

[IEV 411-37-01]

3.6
winding phase
one or more winding elements associated with a particular phase

3.7
winding element
part of a winding, all the turns or coils in that part being permanently connected together

3.8
separate windings
two or more windings, each having a separate function, and not interconnected, used only separately, whether fully or in part

3.9
multi-speed motor
motor, which can be operated at any one of two or more definite speeds

3.10
constant power
when a multi-speed motor provides approximately constant power over the speed range

3.11
constant torque
when a multi-speed motor provides approximately constant torque over the speed range

3.12
variable torque
when output torque of a multi-speed motor is proportional to approximately the square of the speeds

3.13
phase sequence
order in which the voltages successively reach their maximum positive values between supply conductors

3.14
D-end
that end of the machine which accommodates the shaft end

[IEV 411-43-36]

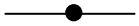
NOTE For machines having two shaft ends, the D-end is the end

a) having the larger diameter;

b) opposite the external fan when the shaft ends are of the same diameter.

4 Symbols

4.1 General

L	Supply conductor
PE	Protective earthing terminal
	User available terminal, marking mandatory
	Internal connection point
(….)	Internal terminal marking (showing element symbol), optional
[…. , ….]	Grouping of user joined terminals
;	Separation of terminals or groups of terminals

4.2 DC and single-phase commutator machines

A	Armature winding
B	Commutating winding
C	Compensating winding
D	Series excitation winding
E	Shunt excitation winding
F	Separately excited winding
H	Direct-axis auxiliary winding
J	Quadrature-axis auxiliary winding

4.3 AC machines without commutator

F	DC excitation winding
K	Secondary winding
L	Secondary winding
M	Secondary winding
N	Star point (neutral conductor) of the primary winding
Q	Star point (neutral conductor) of a secondary winding
U	Primary winding
V	Primary winding
W	Primary winding
Z	Auxiliary windings

NOTE The primary and secondary symbol allocations are irrespective of whether the primary winding is located in the stator or rotor.