



# SLOVENSKI STANDARD

## SIST HD 53.8 S5:1999

01-julij-1999

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### Rotating electrical machines - Part 8: Terminal markings and direction of rotation of rotating machines (IEC 60034-8:1972+A1:1990 + A2:1996)

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

Drehende elektrische Maschinen -- Teil 8: Klemmenbezeichnungen und Drehsinn von drehenden elektrischen Maschinen

Machines électriques tournantes -- Partie 8: Marques d'extrémités et sens de rotation des machines tournantes

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Ta slovenski standard je istoveten z: **HD 53.8 S5:1998**

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#### **ICS:**

29.160.01	Rotacijski stroji na splošno	Rotating machinery in general
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HARMONIZATION DOCUMENT  
DOCUMENT D'HARMONISATION  
HARMONISIERUNGSDOKUMENT

**HD 53.8 S5**

April 1998

ICS 29.160.01

Supersedes HD 53.8 S4:1993

Descriptors: Rotating electrical machines, terminal markings and direction of rotation

English version

**Rotating electrical machines  
Part 8: Terminal markings and direction  
of rotation of rotating machines  
(IEC 60034-8:1972 + A1:1990 + A2:1996)**

Machines électriques tournantes  
Partie 8: Marques d'extrémités et sens  
de rotation des machines tournantes  
(CEI 60034-8:1972 + A1:1990 +  
A2:1996)

Drehende elektrische Maschinen  
Teil 8: Klemmenbezeichnungen und  
Dreh Sinn von drehenden elektrischen  
Maschinen  
(IEC 60034-8:1972 + A1:1990 +  
A2:1996)

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This Harmonization Document was approved by CENELEC on 1998-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

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

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, 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

The text of the International Standard IEC 60034-8:1972 and its amendments 1:1990 and 2:1996, prepared by IEC TC 2, Rotating machinery, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as HD 53.8 S5 on 1998-04-01 without any modification.

The following dates were fixed:

- latest date by which the existence of the HD  
has to be announced at national level (doa) 1998-09-01
- latest date by which the HD has to be implemented  
at national level by publication of a harmonized  
national standard or by endorsement (dop) 1999-03-01
- latest date by which the national standards conflicting  
with the HD have to be withdrawn (dow) 1999-03-01

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### Endorsement notice

The text of the International Standard IEC 60034-8:1972 and its amendments 1:1990 and 2:1996 was approved by CENELEC as a Harmonization Document without any modification.

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**COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE**

(affiliée à l'Organisation Internationale de Normalisation — ISO)

RECOMMANDATION DE LA CEI

**INTERNATIONAL ELECTROTECHNICAL COMMISSION**

(affiliated to the International Organization for Standardization — ISO)

IEC RECOMMENDATION

Publication 34-8

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1972

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**Machines électriques tournantes**

Huitième partie: Marques d'extrémités et sens de rotation des machines tournantes

**(standards.iteh.ai)****Rotating electrical machines**<https://standards.iteh.ai/catalog/standards/sist/09fc0e48-f908-4bf2-ac3f-300a4099558d/sist/53-8-s5-1999>  
Part 8: Terminal markings and direction of rotation of rotating machines

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ROTATING ELECTRICAL MACHINES

## Part 8: Terminal markings and direction of rotation of rotating machines

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote this international unification, the IEC expresses the wish that all National Committees having as yet no national rules, when preparing such rules, should use the IEC recommendations as the fundamental basis for these rules in so far as national conditions will permit.
- 4) The desirability is recognized of extending international agreement on these matters through an endeavour to harmonize national standardization rules with these recommendations in so far as national conditions will permit. The National Committees pledge their influence towards that end.

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PREFACE

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This Recommendation has been prepared by Sub-Committee 16A, Terminal markings for rotating machines, of IEC Technical Committee No. 16, Terminal markings and other identifications.

Drafts were discussed at the meeting held in London in 1968. As a result of this meeting, a draft was submitted to the National Committees for approval under the Six Months' Rule in March 1969. Amendments were submitted to the National Committees for approval under the Two Months' Procedure in October 1970.

The following countries voted explicitly in favour of publication:

Australia	Japan
Austria	Netherlands
Belgium	Norway
Czechoslovakia	Poland
Denmark	South Africa
Finland	Sweden
France	Switzerland
Germany	Turkey
Hungary	Union of Soviet Socialist Republics
Israel	Yugoslavia

## TERMINAL MARKINGS AND DIRECTION OF ROTATION OF ROTATING MACHINES

### Explanatory Note

This Recommendation, as far as it deals with terminal markings, is based on the following marking principles:

- a) Windings are distinguished by a (capital) letter (e.g. U, V, W).
- b) End points and intermediate points of a winding are distinguished by a numerical suffix to the winding letter (e.g. U1, U2, U3).
- c) Similar windings of a group having the same winding letters are distinguished by a numerical prefix to the winding letter (e.g. 1U, 2U).
- d) Winding letters for d.c. windings are chosen from the first part of the alphabet and winding letters for a.c. windings from the second part of the alphabet.

### iTeh STANDARD PREVIEW

This Recommendation deals with "external" terminals, i.e. terminals at the disposal of the user for connection of the machine with the supply and with other apparatus and for other use. It can be applied to internal terminals also, the more so as the inherent logic of the system makes extension to almost any case possible.

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If no confusion is possible, the prefix or the suffix or both may be omitted.

It is obvious that this Recommendation does not cover all cases in detail; it makes it possible however to deal with cases not specifically mentioned in the text.

#### 1. Scope

This Recommendation concerns a.c. machines without commutator and d.c. commutator machines and deals with:

- a) terminal markings;
- b) direction of rotation;
- c) relation between terminal markings and direction of rotation.



- |   |   |
|---|---|
| <p>2. Marquage des extrémités d'enroulement sorties des machines à courant alternatif sans collecteur</p> <p>2.1 Les marques des extrémités sorties des enroulements de stator* triphasés des machines synchrones et asynchrones doivent être comme indiqué ci-après:</p> | <p>2. Terminal markings of a.c. machines (excluding a.c. commutator machines)</p> <p>2.1 The terminals of three-phase stator* windings of synchronous and asynchronous machines shall be marked as follows:</p> |
|---|---|

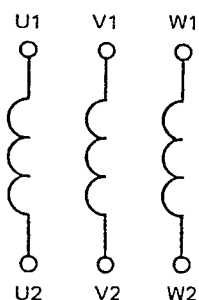


FIG. 1. — Enroulement unique avec six extrémités sorties.

Single winding with six terminals

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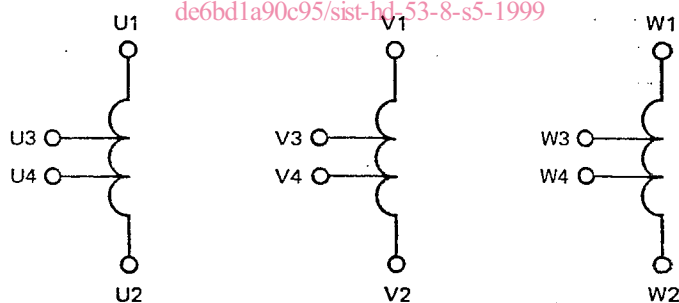
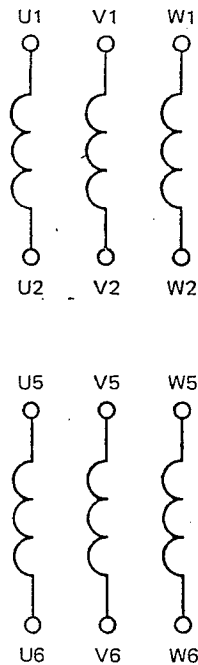


FIG. 2. — Enroulement à prises avec 12 extrémités sorties.

Tapped winding with 12 terminals.

\* L'enroulement primaire est supposé être situé sur le stator. Si l'enroulement primaire est sur le rotor, les lettres U, V, W, N sont utilisées pour le rotor et les lettres K, L, M, Q pour le stator.

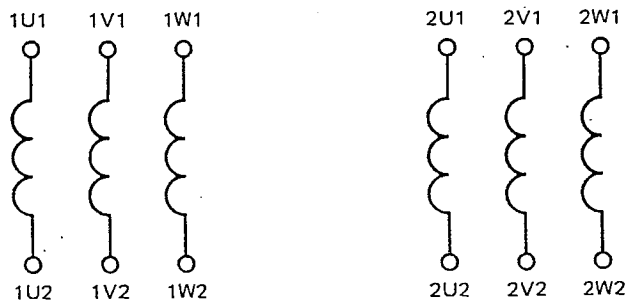
\* It is supposed that the primary winding is on the stator. If the primary winding is on the rotor, the letters U, V, W, N are applied to the rotor winding, the letters K, L, M, Q to the stator winding.



*Note.* — L'ordre interrompu 1, 2, 5, 6 est choisi pour distinguer cet enroulement de l'enroulement à prises (figure 2).

*Note.* — The interrupted sequence 1, 2, 5, 6 is chosen to distinguish this winding from the tapped winding (figure 2).

FIG. 3. — Enroulement en deux moitiés pour couplage en série ou en parallèle avec 12 extrémités sorties.  
Split winding intended for series-parallel arrangement with 12 terminals.



*Note.* — Dans le cas de moteurs à pôles commutables avec deux enroulements séparés, correspondant à deux vitesses, le préfixe numérique le plus bas (le plus élevé) doit indiquer la vitesse la plus basse (la plus élevée).

*Note.* — When used in change-pole motors with two separate windings for two speeds, the lower (higher) numerical prefix shall indicate the lower (higher) speed.

FIG. 4. — Deux enroulements séparés, qui ne se prêtent pas à un couplage série parallèle, avec six extrémités sorties.

Pair of separate windings not intended for series-parallel arrangement, each with six terminals.

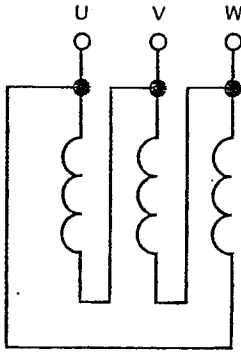


FIG. 5. — Couplage en triangle  
avec trois extrémités sorties.  
Delta connection with three terminals.

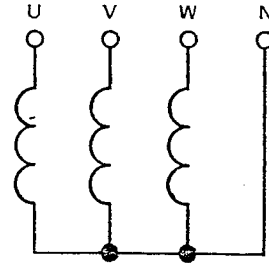
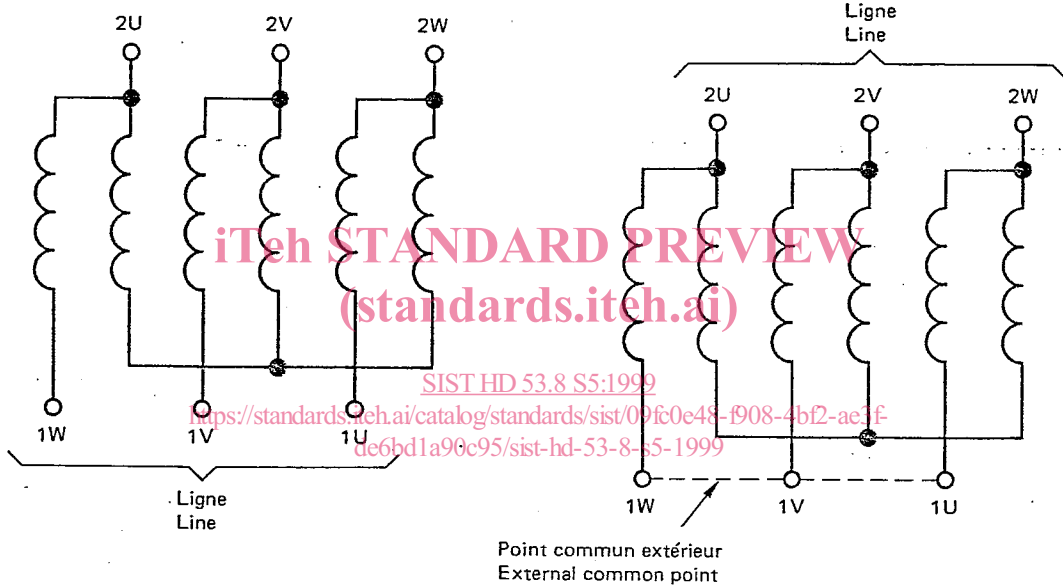


FIG. 6. — Couplage en étoile  
avec quatre extrémités sorties.  
Star connection with four terminals.



Petite vitesse:

Alimentation en 1W, 1V, 1U.  
Couplage en étoile série.

Low speed:

1W, 1V, 1U connected with supply.  
Winding connection: series star.

Grande vitesse:

Alimentation en 2U, 2V, 2W; les extrémités  
1W, 1V, 1U sont réunies en un point neutre.  
Couplage en étoile parallèle.

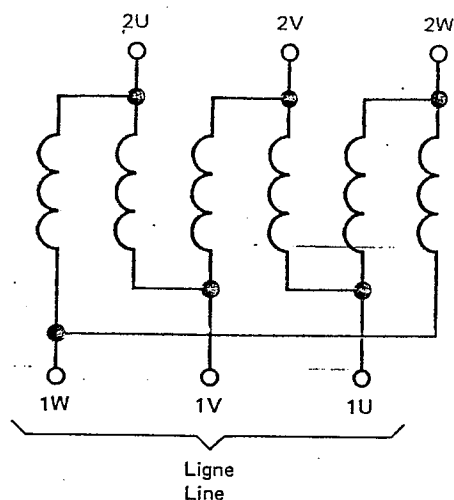
High speed:

2U, 2V, 2W connected with supply, 1W  
connected to 1V and 1U.  
Winding connection: parallel star.

Notes 1. — Le préfixe numérique la plus bas (le plus élevé)  
doit indiquer la plus petite (la plus grande)  
vitesse.  
2. — La relation entre le sens de rotation et l'ordre  
alphabétique des lettres du paragraphe 5.1 est  
applicable aux deux vitesses.

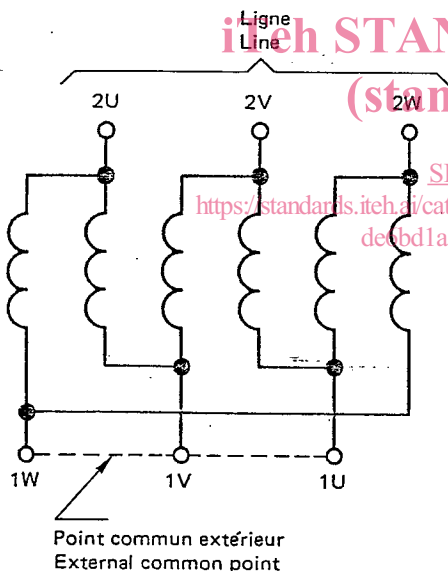
Notes 1. — The lower (higher) numerical prefix shall indi-  
cate the supply terminals for the lower (higher)  
speed.  
2. — The relation between direction of rotation and  
alphabetical sequence of the terminal letters giv-  
en in Sub-clause 5.1 is valid for both speeds.

FIG. 7. — Enroulement à deux vitesses avec six extrémités sorties.  
Two speed winding with six terminals.



Petite vitesse:  
Alimentation en 1W, 1V, 1U.  
Couplage en triangle série.

Low speed:  
1W, 1V, 1U connected with supply.  
Winding connection: series delta.



Grande vitesse:  
Alimentation en 2U, 2V, 2W; les extrémités  
1W, 1V, 1U sont réunies en un point neutre.  
Couplage en étoile parallèle.

High speed:  
2U, 2V, 2W connected with supply, 1U  
connected to 1V and 1W.  
Winding connection: parallel star.

- Notes 1.* — Le préfixe numérique le plus bas (le plus élevé) doit indiquer la plus petite (la plus grande) vitesse.
- 2.* — La relation entre le sens de rotation et l'ordre alphabétique des lettres du paragraphe 5.1 est applicable aux deux vitesses.

- Notes 1.* — The lower (higher) numerical prefix shall indicate the supply terminals for the lower (higher) speed.
- 2.* — The relation between direction of rotation and alphabetical sequence of the terminal letters given in Sub-clause 5.1 is valid for both speeds.

FIG. 8. — Enroulement à deux vitesses avec six extrémités sorties.  
Two speed winding with six terminals.