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Roterande elektriska maskiner – Del 2-1: Bestämning av förluster och verkningsgrad hos elektriska maskiner – Provningsmetoder (exklusive motorer för traktionsfordon)

Rotating electrical machines –

*Part 2-1: Standard methods for determining losses and efficiency from tests
(excluding machines for traction vehicles)*

Som svensk standard gäller europastandarden EN 60034-2-1:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60034-2-1:2007.

Nationellt förord

Europastandarden EN 60034-2-1:2007

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60034-2-1, First edition, 2007 - Rotating electrical machines - Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60034-2, utgåva 1, 1997, SS-EN 60034-2/A1, utgåva 1, 1997 och SS-EN 60034-2/A2, utgåva 1, 1997, gäller ej fr o m 2010-11-01, med undantag för den i denna standard ikraftsatta IEC 60034-2A (tidigare betecknad IEC 34-2A), Methods for determining losses and efficiency of rotation electrical machinery from tests (excluding machines for traction vehicles) – Measurement of losses by the calorimetric method, som planeras ersättas av en kommande SS-EN 60034-2-2 och som därför fortsätter att gälla.

ICS 29.160

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English version

**Rotating electrical machines -
Part 2-1: Standard methods for determining losses and efficiency
from tests (excluding machines for traction vehicles)
(IEC 60034-2-1:2007)**

Machines électriques tournantes -
Partie 2-1: Méthodes normalisées
pour la détermination des pertes
et du rendement à partir d'essais
(à l'exclusion des machines
pour véhicules de traction)
(CEI 60034-2-1:2007)

Drehende elektrische Maschinen -
Teil 2-1: Standardverfahren
zur Bestimmung der Verluste
und des Wirkungsgrades aus Prüfungen
(ausgenommen Maschinen
für Schienen- und Straßenfahrzeuge)
(IEC 60034-2-1:2007)

This European Standard was approved by CENELEC on 2007-11-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 document 2/1443/FDIS, future edition 1 of IEC 60034-2-1, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-2-1 on 2007-11-01.

This European Standard partly supersedes EN 60034-2:1996 + A1:1996 + A2:1996.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2008-08-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2010-11-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60034-2-1:2007 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60027-1	– ¹⁾	Letter symbols to be used in electrical technology - Part 1: General	EN 60027-1	2006 ²⁾
IEC 60034-1	– ¹⁾	Rotating electrical machines - Part 1: Rating and performance	EN 60034-1	2004 ²⁾
IEC 60034-2A	1974 ³⁾	Rotating electrical machines - Part 2: Methods for determining losses and efficiency of rotating electrical machinery from tests (excluding machines for traction vehicles) - First supplement: Measurement of losses by the calorimetric method	–	–
IEC 60034-4 (mod)	– ¹⁾	Rotating electrical machines - Part 4: Methods for determining synchronous machine quantities from tests	EN 60034-4	1995 ²⁾
IEC 60034-19	– ¹⁾	Rotating electrical machines - Part 19: Specific test methods for d.c. machines on conventional and rectifier-fed supplies	-	-
IEC 60044 (mod)	Series	Instrument transformers	EN 60044	Series
IEC 60051-1	– ¹⁾	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 1: Definitions and general requirements common to all parts	EN 60051-1	1998 ²⁾
IEC 61986	– ¹⁾	Rotating electrical machines - Equivalent loading and super-position techniques - Indirect testing to determine temperature rise	EN 61986	2002 ⁴⁾

1) Undated reference.

2) Valid edition at date of issue.

3) IEC 60034-2A:1974, which is included in EN 60034-2:1996, is retained for the time being. It will be incorporated in the future IEC 60034-2-2.

4) Valid edition at date of issue. A revision of IEC 61986 is under consideration for publication under reference IEC 60034-29; it is expected to be harmonized as EN 60034-29.

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INTRODUCTION

During the revision phase for IEC 60034-2: 1972 and its amendments IEC 60034-2 A1: 1995 (defining IEC 60034-2A: 1974 as Clause 17) and IEC 60034-2 A2: 1996, WG 28 proposed and TC 2 agreed to separate the revised standard into three sections:

- the first part (IEC 60034-2-1) to cover machines within the scope of IEC 60034-1, which are normally tested under load;
- the second part (IEC 60034-2-2) to cover tests applicable mainly for large machines where the facility cost for other methods is not economical (especially the calibrated-machine test, the retardation test and the calorimetric method);
- the third part (IEC 60034-2-3) for tests on machines for converter supply..

To retain in IEC 60034-2-1 as normative the test methods that will eventually become IEC 60034-2-2, a temporary Annex D has been added. This annex contains elements from IEC 60034-2:1972 and its amendment 1:1995. It also makes reference to IEC 60034-2A:1974. Both will be incorporated in the future IEC 60034-2-2.

ROTATING ELECTRICAL MACHINES –

Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)

1 Scope

This part of IEC 60034 is intended to establish methods of determining efficiencies from tests, and also to specify methods of obtaining specific losses.

This standard applies to d.c. machines and to a.c. synchronous and induction machines of all sizes within the scope of IEC 60034-1.

NOTE These methods may be applied to other types of machines such as rotary converters, a.c. commutator motors and single-phase induction motors.

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 60027-1, *Letter symbols to be used in electrical technology – Part 1: General*

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

IEC 60034-2A, *Rotating electrical machines – Part 2: Methods for determining losses and efficiency of rotating electrical machinery from tests (excluding machines for traction vehicles) – First supplement: Measurement of losses by the calorimetric method*

IEC 60034-4, *Rotating electrical machines – Part 4: Methods for determining synchronous machine quantities from tests*

IEC 60034-19, *Rotating electrical machines – Part 19: Specific test methods for d.c. machines on conventional and rectifier-fed supplies*

IEC 60044 (all parts), *Instrument transformers*

IEC 60051-1, *Direct acting indicating analogue electrical measuring instruments and their accessories – Part 1: Definitions and general requirements common to all parts*

IEC 61986, *Rotating electrical machines – Equivalent loading and super-position techniques – Indirect testing to determine temperature rise*

NOTE A revision of IEC 61986 is under consideration; it will be published under reference IEC 60034-29.