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Roterande elektriska maskiner – Del 4: Bestämning av synkronmaskiners parametrar – Provningsmetoder

Rotating electrical machines –

Part 4: Methods for determining synchronous machine quantities from tests

Som svensk standard gäller europastandarden EN 60034-4:2008. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60034-4:2008.

Nationellt förord

Europastandarden EN 60034-4:2008

består av:

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- **IEC 60034-4, Third edition, 2008 - Rotating electrical machines - Part 4: Methods for determining synchronous machine quantities from tests**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60034-4, utgåva 1, 1996, gäller ej fr o m 2011-07-01.

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English version

**Rotating electrical machines -
Part 4: Methods for determining synchronous machine quantities
from tests
(IEC 60034-4:2008)**

Machines électriques tournantes -
Partie 4: Méthodes pour la détermination,
à partir d'essais, des grandeurs
des machines synchrones
(CEI 60034-4:2008)

Drehende elektrische Maschinen -
Teil 4: Verfahren zur Ermittlung
der Kenngrößen von Synchronmaschinen
durch Messungen
(IEC 60034-4:2008)

This European Standard was approved by CENELEC on 2008-07-01. 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 2/1488/FDIS, future edition 3 of IEC 60034-4, prepared by IEC TC 2, Rotating machinery, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60034-4 on 2008-07-01.

This European Standard supersedes EN 60034-4:1995.

The main changes with respect to EN 60034-4:1995 are listed below:

- tests described in supplement A of EN 60034-4:1995 were partly removed for lack of relevance in current practice;
- provisions were made for tests on machines with brushless excitation;
- a table of test methods indicates preferred tests, and a test cross-reference is provided;
- the conventional two-axes salient-pole machine model description was added in an annex.

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) 2009-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60034-4:2008 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 60034-1 | 2004 | Rotating electrical machines - Part 1: Rating and performance | EN 60034-1 | 2004 |
| IEC 60034-2-1 | - ¹⁾ | Rotating electrical machines - Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles) | EN 60034-2-1 | 2007 ²⁾ |
| IEC 60034-2A | - ¹⁾ | 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 60051 | Series | Direct acting indicating analogue electrical measuring instruments and their accessories | EN 60051 | Series |

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

CONTENTS

| | | |
|--------|---|----|
| 1 | Scope | 9 |
| 2 | Normative references | 9 |
| 3 | Terms and definitions | 9 |
| 4 | Symbols and units | 14 |
| 5 | Overview of tests | 15 |
| 6 | Test procedures | 18 |
| 6.1 | General | 18 |
| 6.1.1 | Instrumentation requirements | 18 |
| 6.1.2 | Excitation system requirements | 18 |
| 6.1.3 | Test conditions | 18 |
| 6.1.4 | Per unit base quantities | 19 |
| 6.1.5 | Conventions and assumptions | 19 |
| 6.1.6 | Consideration of magnetic saturation | 20 |
| 6.2 | Direct measurements of excitation current at rated load | 21 |
| 6.3 | Direct-current winding resistance measurements | 21 |
| 6.4 | No-load saturation test | 22 |
| 6.4.1 | Test procedure | 22 |
| 6.4.2 | No-load saturation characteristic determination | 23 |
| 6.5 | Sustained three-phase short-circuit test | 23 |
| 6.5.1 | Test procedure | 23 |
| 6.5.2 | Three-phase sustained short-circuit characteristic | 24 |
| 6.6 | Motor no-load test | 24 |
| 6.7 | Phase shifting test | 24 |
| 6.8 | Over-excitation test at zero power-factor | 25 |
| 6.9 | Negative excitation test | 25 |
| 6.10 | On-load test measuring the load angle | 25 |
| 6.11 | Low slip test | 25 |
| 6.12 | Sudden three-phase short-circuit test | 26 |
| 6.13 | Voltage recovery test | 27 |
| 6.14 | Suddenly applied short-circuit test following disconnection from line | 27 |
| 6.15 | Direct current decay test in the armature winding at standstill test | 27 |
| 6.16 | Suddenly applied excitation test with armature winding open-circuited | 28 |
| 6.17 | Applied voltage test with the rotor in direct and quadrature axis positions | 29 |
| 6.18 | Applied voltage test with the rotor in arbitrary position | 29 |
| 6.19 | Single phase voltage test applied to the three phases | 30 |
| 6.20 | Line-to-line sustained short-circuit test | 30 |
| 6.21 | Sudden line-to-line short-circuit | 31 |
| 6.22 | Line-to-line and to neutral sustained short-circuit test | 31 |
| 6.23 | Negative-phase sequence test | 32 |
| 6.24 | Field current decay test, with the armature winding open-circuited | 32 |
| 6.24.1 | Test at rated speed | 32 |
| 6.24.2 | Test at standstill | 32 |
| 6.25 | Field current decay test at rated speed with the armature-winding short-circuited | 32 |
| 6.26 | Suddenly applied excitation with armature winding short-circuited | 33 |

| | | |
|-------|--|----|
| 6.27 | Field current decay test at standstill with two phases of armature winding short-circuited | 33 |
| 6.28 | Applied voltage test with rotor removed | 33 |
| 6.29 | No-load retardation test | 34 |
| 6.30 | Suspended rotor oscillation test | 34 |
| 6.31 | Locked rotor test | 35 |
| 6.32 | Over-excitation test at zero power factor and variable armature voltage | 35 |
| 6.33 | Asynchronous operation during the low-voltage test | 35 |
| 6.34 | Applied variable frequency voltage test at standstill | 36 |
| 7 | Determination of quantities | 38 |
| 7.1 | Graphic procedures and analysis of oscillographic records | 38 |
| 7.1.1 | No-load saturation and three-phase, sustained short-circuit curves | 38 |
| 7.1.2 | Sudden three-phase short-circuit test | 38 |
| 7.1.3 | Voltage recovery test | 41 |
| 7.1.4 | Direct current decay in the armature winding at standstill | 41 |
| 7.1.5 | Suddenly applied excitation test with armature winding open-circuited | 43 |
| 7.2 | Direct-axis synchronous reactance | 44 |
| 7.2.1 | From no-load saturation and three-phase sustained short-circuit test | 44 |
| 7.2.2 | From motor no-load test | 44 |
| 7.2.3 | From phase shifting test | 44 |
| 7.2.4 | From on-load test measuring the load angle | 44 |
| 7.3 | Direct-axis transient reactance | 45 |
| 7.3.1 | From sudden three-phase short-circuit test | 45 |
| 7.3.2 | From voltage recovery test | 45 |
| 7.3.3 | From d.c. decay test in the armature winding at standstill | 45 |
| 7.3.4 | Calculation from test values | 45 |
| 7.4 | Direct-axis sub-transient reactance | 45 |
| 7.4.1 | From sudden three-phase short-circuit test | 45 |
| 7.4.2 | From voltage recovery test | 46 |
| 7.4.3 | From applied voltage test with the rotor in direct and quadrature axis | 46 |
| 7.4.4 | From applied voltage test with the rotor in arbitrary position | 46 |
| 7.5 | Quadrature-axis synchronous reactance | 47 |
| 7.5.1 | From negative excitation test | 47 |
| 7.5.2 | From low slip test | 47 |
| 7.5.3 | From phase shifting test | 48 |
| 7.5.4 | From on-load test measuring the load angle | 49 |
| 7.6 | Quadrature-axis transient reactance | 49 |
| 7.6.1 | From direct current decay test in the armature winding at standstill | 49 |
| 7.6.2 | Calculation from test values | 49 |
| 7.7 | Quadrature-axis sub-transient reactance | 49 |
| 7.7.1 | From applied voltage test with the rotor in direct and quadrature position | 49 |
| 7.7.2 | From applied voltage test with the rotor in arbitrary position | 50 |
| 7.8 | Zero-sequence reactance | 50 |
| 7.8.1 | From single-phase voltage application to the three phases | 50 |
| 7.8.2 | From line-to-line and to neutral sustained short-circuit test | 50 |
| 7.9 | Negative-sequence reactance | 51 |
| 7.9.1 | From line-to-line sustained short-circuit test | 51 |
| 7.9.2 | From negative-phase sequence test | 51 |

| | | |
|--------|--|----|
| 7.9.3 | Calculation from test values..... | 52 |
| 7.9.4 | From sudden line-to-line short-circuit test..... | 52 |
| 7.9.5 | From direct-current decay test at standstill..... | 52 |
| 7.10 | Armature leakage reactance..... | 52 |
| 7.11 | Potier reactance..... | 53 |
| 7.12 | Zero-sequence resistance..... | 54 |
| 7.12.1 | From single-phase voltage test applied to the three phases..... | 54 |
| 7.12.2 | From line-to-line and to neutral sustained short-circuit test..... | 54 |
| 7.13 | Positive-sequence armature winding resistance..... | 54 |
| 7.14 | Negative-sequence resistance..... | 54 |
| 7.14.1 | From line-to-line sustained short-circuit test..... | 54 |
| 7.14.2 | From negative-phase sequence test..... | 55 |
| 7.15 | Armature and excitation winding resistance..... | 55 |
| 7.16 | Direct-axis transient short-circuit time constant..... | 56 |
| 7.16.1 | From sudden three-phase short-circuit test..... | 56 |
| 7.16.2 | From field current decay at rated speed with armature winding short-circuited..... | 56 |
| 7.16.3 | From direct current decay test at standstill..... | 56 |
| 7.16.4 | From suddenly applied excitation with armature winding short-circuited..... | 56 |
| 7.16.5 | From field current decay test at standstill with two phases of armature winding short-circuited..... | 56 |
| 7.17 | Direct-axis transient open-circuit time constant..... | 56 |
| 7.17.1 | From field current decay at rated speed with armature winding open..... | 56 |
| 7.17.2 | From field current decay test at standstill with armature winding open..... | 56 |
| 7.17.3 | From voltage recovery test..... | 56 |
| 7.17.4 | From direct-current decay test at standstill..... | 57 |
| 7.17.5 | From suddenly applied excitation with armature winding open-circuited..... | 57 |
| 7.18 | Direct-axis sub-transient short-circuit time constant..... | 57 |
| 7.19 | Direct-axis sub-transient open-circuit time constant..... | 57 |
| 7.19.1 | From voltage recovery test..... | 57 |
| 7.19.2 | From direct-current decay test at standstill..... | 57 |
| 7.20 | Quadrature-axis transient short-circuit time constant..... | 57 |
| 7.20.1 | Calculation from test values..... | 57 |
| 7.20.2 | From direct-current decay test at standstill..... | 57 |
| 7.21 | Quadrature-axis transient open-circuit time constant..... | 57 |
| 7.21.1 | Determination from direct-current decay test at standstill..... | 57 |
| 7.22 | Quadrature-axis sub-transient short-circuit time constant..... | 57 |
| 7.22.1 | Calculation from test values..... | 57 |
| 7.22.2 | Determination from direct-current decay test at standstill..... | 58 |
| 7.23 | Quadrature-axis sub-transient open-circuit time constant..... | 58 |
| 7.23.1 | From direct-current decay test at standstill..... | 58 |
| 7.24 | Armature short-circuit time constant..... | 58 |
| 7.24.1 | From sudden three-phase short-circuit test..... | 58 |
| 7.24.2 | Calculation from test values..... | 58 |
| 7.25 | Rated acceleration time and stored energy constant..... | 58 |
| 7.25.1 | From suspended rotor oscillation test..... | 58 |
| 7.25.2 | From no-load retardation test..... | 59 |

| | | |
|-----------------------|--|----|
| 7.26 | Rated excitation current | 59 |
| 7.26.1 | From direct measurement | 59 |
| 7.26.2 | Potier diagram | 60 |
| 7.26.3 | ASA diagram | 61 |
| 7.26.4 | Swedish diagram | 62 |
| 7.27 | Excitation current referred to rated armature sustained short-circuit current | 63 |
| 7.27.1 | From over-excitation test at zero power factor | 63 |
| 7.27.2 | From sustained three-phase short-circuit test | 64 |
| 7.28 | Frequency response characteristics | 64 |
| 7.28.1 | General | 64 |
| 7.28.2 | From asynchronous operation at reduced voltage | 64 |
| 7.28.3 | From applied variable frequency voltage test at standstill | 65 |
| 7.28.4 | From direct current decay test in the armature winding at standstill | 66 |
| 7.29 | Short-circuit ratio | 67 |
| 7.30 | Rated voltage regulation | 67 |
| 7.30.1 | From direct measurement | 67 |
| 7.30.2 | From no-load saturation characteristic and known field current at rated load | 67 |
| 7.31 | Initial starting impedance of synchronous motors | 67 |
| Annex A (informative) | Testing cross-reference | 69 |
| Annex B (informative) | Calculation scheme for frequency response characteristics | 72 |
| Annex C (informative) | Conventional electrical machine model | 74 |
| Figure 1 | – Schematic for d.c. decay test at standstill | 28 |
| Figure 2 | – Circuit diagram for line-to-line short-circuit test | 30 |
| Figure 3 | – Circuit diagram for line-to-line and to neutral sustained short-circuit test | 31 |
| Figure 4 | – Search coil installation with rotor removed | 34 |
| Figure 5 | – Power and current versus slip (example) | 36 |
| Figure 6 | – Schematic for variable frequency test at standstill | 36 |
| Figure 7 | – Recorded quantities from variable frequency test at standstill (example) | 37 |
| Figure 8 | – Combined saturation and short-circuit curves | 38 |
| Figure 9 | – Transient and sub-transient component of short-circuit current | 39 |
| Figure 10 | – Determination of transient component of short-circuit current | 40 |
| Figure 11 | – Graphical determination of aperiodic component | 40 |
| Figure 12 | – Transient and sub-transient component of recovery voltage | 41 |
| Figure 13 | – Semi-logarithmic plot of decay currents | 42 |
| Figure 14 | – Suddenly applied excitation with armature winding open-circuited | 43 |
| Figure 15 | – No-load e.m.f. and excitation current for one pole-pitch slip | 47 |
| Figure 16 | – Current envelope from low-slip test | 48 |
| Figure 17 | – Determination of Potier reactance | 53 |
| Figure 18 | – Potier's diagram | 60 |
| Figure 19 | – ASA diagram | 61 |
| Figure 20 | – Swedish diagram | 62 |
| Figure 21 | – Excitation current from over-excitation at zero power factor | 63 |
| Figure 22 | – Frequency response characteristics at low frequencies (example) | 65 |

Figure C.1 – Equivalent circuit model of a salient pole machine 74

Table 1 – Test methods and cross-reference table..... 16

Table A.1 – Test cross-reference 69

ROTATING ELECTRICAL MACHINES –

Part 4: Methods for determining synchronous machine quantities from tests

1 Scope

This part of IEC 60034 applies to three-phase synchronous machines of 1 kVA rating and larger with rated frequency of not greater than 500 Hz and not less than 10 Hz.

Most of the methods are intended to be used for machines having an excitation winding with slip-rings and brushes for their supply. Synchronous machines with brushless excitation require special effort for some of the tests. For machines with permanent magnet excitation, there is a limited applicability of the described tests, and special precautions have to be taken against irreversible demagnetization.

Excluded are axial-field machines and special synchronous machines such as inductor type machines and transversal flux machines.

It is not intended that this standard be interpreted as requiring any or all of the tests described therein on any given machine. The particular tests to be carried out shall be subject to agreement between manufacturer and customer.

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 60034-1:2004, *Rotating electrical machines – Part 1: Rating and performance*

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

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

IEC 60051 (all parts), *Direct acting indicating analogue electrical measuring instruments and their accessories*

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