# SLOVENSKI STANDARD
# SIST EN IEC 61400-1:2019

**01-junij-2019**

**Nadomešča:**
**SIST EN 61400-1:2006**
**SIST EN 61400-1:2006/A1:2011**

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**Sistemi za proizvodnjo energije na veter - 1. del: Zahteve za načrtovanje (IEC 61400-1:2019)**

Wind energy generation systems - Part 1: Design requirements (IEC 61400-1:2019)

Windenergieanlagen - Teil 1: Auslegungsanforderungen (IEC 61400-1:2019)



Systèmes de génération d'énergie éolienne - Partie 1: Exigences de conception (IEC 61400-1:2019)



**Ta slovenski standard je istoveten z:** **EN IEC 61400-1:2019**

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**ICS:**

| | | |
|---|---|---|
| 27.180 | Vetrne elektrarne | Wind turbine energy systems |

**SIST EN IEC 61400-1:2019** **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN IEC 61400-1

April 2019

ICS 27.180

Supersedes EN 61400-1:2005

English Version

# Wind energy generation systems - Part 1: Design requirements (IEC 61400-1:2019)

Systèmes de génération d'énergie éolienne - Partie 1: Exigences de conception (IEC 61400-1:2019)

Windenergieanlagen - Teil 1: Auslegungsanforderungen (IEC 61400-1:2019)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## European foreword

The text of document 88/696/FDIS, future edition 4 of IEC 61400-1, prepared by IEC/TC 88 "Wind energy generation systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61400-1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2019-12-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-03-15

This document supersedes EN 61400-1:2005.

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## Endorsement notice



The text of the International Standard IEC 61400-1:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

| | | |
|---|---|---|
| IEC 60146 (series) | NOTE | Harmonized as EN 60146 (series) |
| IEC 60269 (series) | NOTE | Harmonized as EN 60269 (series) |
| IEC 60898 (series) | NOTE | Harmonized as EN 60898 (series) |
| IEC 61000-6-1 | NOTE | Harmonized as EN IEC 61000-6-1 |
| IEC 61000-6-4 | NOTE | Harmonized as EN 61000-6-4 |
| IEC 61310-1:2007 | NOTE | Harmonized as EN 61310-1:2008 (not modified) |
| IEC 61310-2:2007 | NOTE | Harmonized as EN 61310-2:2008 (not modified) |
| IEC 61400-2 | NOTE | Harmonized as EN 61400-2 |
| IEC 61400-3-1[1] | NOTE | Harmonized as EN IEC 61400-3-1[2] |
| IEC 61400-6[3] | NOTE | Harmonized as EN IEC 61400-6[4] |

[1] To be published. Stage at time of publication: IEC CDV 61400-3-1:2017

[2] To be published. Stage at time of publication: FprEN IEC 61400-3-1:2018

[3] To be published. Stage at time of publication: IEC CDV 61400-6:2017

[4] To be published. Stage at time of publication: pr EN IEC 61400-6:2017

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|---|---|---|
| IEC 61400-12-1 | NOTE | Harmonized as EN 61400-12-1 |
| IEC 61400-13 | NOTE | Harmonized as EN 61400-13 |
| IEC 61400-21 | NOTE | Harmonized as EN 61400-21 |
| IEC 61508 (series) | NOTE | Harmonized as EN 61508 (series) |
| IEC 61508-1:2010 | NOTE | Harmonized as EN 61508-1:2010 (not modified) |
| IEC 61508-6 | NOTE | Harmonized as EN 61508-6 |
| IEC 62061:2005 | NOTE | Harmonized as EN 62061:2005 (not modified) |
| IEC 62061:2005/AMD1:2012 | NOTE | Harmonized as EN 62061:2005/A1:2013 (not modified) |
| IEC 62061:2005/AMD2:2015 | NOTE | Harmonized as EN 62061:2005/A2:2015 (not modified) |
| IEC 62305-1 | NOTE | Harmonized as EN 62305-1 |
| ISO 12100:2010 | NOTE | Harmonized as EN ISO 12100:2010 (not modified) |
| ISO 9001 | NOTE | Harmonized as EN ISO 9001 |
| ISO 13849-2 | NOTE | Harmonized as EN ISO 13849-2 |

# Annex ZA
(normative)

## Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 60034 | series | Rotating electrical machines | - | series |
| IEC 60038 | - | IEC standard voltages | EN 60038 | - |
| IEC 60071-1 | - | Insulation co-ordination - Part 1: Definitions, principles and rules | EN 60071-1 | - |
| IEC 60071-2 | - | Insulation co-ordination - Part 2: Application guidelines | EN IEC 60071-2 | - |
| IEC 60076 | series | Power transformers | EN 60076 | series |
| IEC 60204-1 | - | Safety of machinery - Electrical equipment of machines - Part 1: General requirements | EN 60204-1 | - |
| IEC 60204-11 | 2000 | Safety of machinery - Electrical equipment of machines - Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV | EN 60204-11 | 2000 |
| - | - | | + corrigendum Feb. | 2010 |
| IEC 60364 | series | Low-voltage electrical installations | HD 60364 | series |
| IEC 60529 | - | Degrees of protection provided by enclosures (IP Code) | - | - |
| IEC 60664-1 | - | Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests | EN 60664-1 | - |
| IEC 60664-3 | - | Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution | EN 60664-3 | - |
| IEC 60721 | series | Classification of environmental conditions - | EN 60721 | series |
| IEC 61000-6-2 | - | Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments | EN IEC 61000-6-2 | - |

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 61400-3 | - | Wind turbines - Part 3: Design requirements for offshore wind turbines | EN 61400-3 | - |
| IEC 61400-4 | - | Wind turbines - Part 4: Design requirements for wind turbine gearboxes | EN 61400-4 | - |
| IEC 61400-24 | - | Wind turbines - Part 24: Lightning protection | EN 61400-24 | - |
| IEC 61439 | series | Low-voltage switchgear and controlgear assemblies | EN 61439 | series |
| IEC 61800-4 | - | Adjustable speed electrical power drive systems - Part 4: General requirements - Rating specifications for a.c. power drive systems above 1 000 V a.c. and not exceeding 35 kV | EN 61800-4 | - |
| IEC 61800-5-1 | - | Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy | EN 61800-5-1 | - |
| IEC 62271 | series | High-voltage switchgear and controlgear | EN 62271 | series |
| IEC 62305-3 | - | Protection against lightning - Part 3: Physical damage to structures and life hazard | EN 62305-3 | - |
| IEC 62305-4 | - | Protection against lightning - Part 4: Electrical and electronic systems within structures | EN 62305-4 | - |
| IEC 62477-1 | 2012 | Safety requirements for power electronic converter systems and equipment - Part 1: General | EN 62477-1 | 2012 |
| - | - | | + A11 | 2014 |
| ISO 76 | - | Rolling bearings - Static load ratings | - | - |
| ISO 281 | - | Rolling bearings - Dynamic load ratings and rating life | - | - |
| ISO 2394 | - | General principles on reliability for structures | - | - |
| ISO 2533 | - | Standard Atmosphere | - | - |
| ISO 4354 | - | Wind actions on structures | - | - |
| ISO 6336-2 | - | Calculation of load capacity of spur and helical gears – Part 2: Calculation of surface durability (pitting) | - | - |
| ISO 6336-3 | 2006 | Calculation of load capacity of spur and helical gears – Part 3: Calculation of tooth bending strength | - | - |
| ISO 12494 | 2001 | Atmospheric icing of structures | - | - |
| ISO 13850 | - | Safety of machinery - Emergency stop function - Principles for design | EN ISO 13850 | - |
| ISO/TS 16281 | - | Rolling bearings -- Methods for calculating the modified reference rating life for universally loaded bearings | - | - |

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# INTERNATIONAL STANDARD

colour inside

## Wind energy generation systems –
## Part 1: Design requirements



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