SVENSK STANDARD SS-EN 61400-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2009-05-25	1	1 (1+128)	SEK TK 88

Vindkraftverk –
Del 3: Havsbaserade anläggningar

Wind turbines –
Part 3: Design requirements for offshore wind turbines

Som svensk standard gäller europastandarden EN 61400-3:2009. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61400-3:2009.

Nationellt förord

Europastandarden EN 61400-3:2009

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61400-3, First edition, 2009 - Wind turbines - Part 3: Design requirements for offshore wind turbines**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 61400-1, utgåva 2, 2006.

ICS 27.180

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61400-3

April 2009

ICS 27.180

English version

Wind turbines - Part 3: Design requirements for offshore wind turbines

(IEC 61400-3:2009)

Eoliennes -
Partie 3: Exigences de conception
des éoliennes en pleine mer
(CEI 61400-3:2009)

Windenergieanlagen -
Teil 3: Auslegungsanforderungen
für Windenergieanlagen auf offener See
(IEC 61400-3:2009)

CENELEC

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61400-3:2009 E

SEK Svensk Elstandard

Foreword

The text of document 88/329/FDIS, future edition 1 of IEC 61400-3, prepared by IEC TC 88, Wind turbines, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61400-3 on 2009-04-01.

This European Standard is to be read in conjunction with EN 61400-1:2005.

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) 2010-01-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-04-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61400-3:2009 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 60034	NOTE Harmonized in EN 60034 series (partially modified).
IEC 60038	NOTE Harmonized as HD 472 S1:1989 (modified), with the following title "*Nominal voltages for low-voltage public electricity supply systems*".
IEC 60146	NOTE Harmonized in EN 60146 series (not modified).
IEC 60204-1	NOTE Harmonized as EN 60204-1:2006 (modified).
IEC 60204-11	NOTE Harmonized as EN 60204-11:2000 (not modified).
IEC 60227	NOTE Is related to HD 21 series (not equivalent).
IEC 60245	NOTE Is related to HD 22 series (not equivalent).
IEC 60269	NOTE Harmonized in EN 60269 series (modified).
IEC 60364	NOTE Harmonized in HD 384/HD 60364 series (modified).
IEC 60439	NOTE Harmonized in EN 60439 series (partially modified).
IEC 60446	NOTE Harmonized as EN 60446:1999 (not modified).
IEC 60529	NOTE Harmonized as EN 60529:1991 (not modified).
IEC 61000-6-1	NOTE Harmonized as EN 61000-6-1:2007 (not modified).
IEC 61000-6-2	NOTE Harmonized as EN 61000-6-2:2005 (not modified).
IEC 61000-6-4	NOTE Harmonized as EN 61000-6-4:2007 (not modified).
IEC 61310-1	NOTE Harmonized as EN 61310-1:1995 (not modified).
IEC 61310-2	NOTE Harmonized as EN 61310-2:1995 (not modified).
IEC 61400-21	NOTE Harmonized as EN 61400-21:2002 (not modified).

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.

Publication	Year	Title	EN/HD	Year
IEC 60721-2-1 + A1	1982 1987	Classification of environmental conditions - Part 2-1: Environmental conditions appearing in nature - Temperature and humidity	HD 478.2.1 S1	1989
IEC 61400-1	2005	Wind turbines - Part 1: Design requirements	EN 61400-1	2005
IEC 62305-3 (mod)	2006	Protection against lightning - Part 3: Physical damage to structures and life hazard	EN 62305-3 + corr. September + A11	2006 2008 2009
IEC 62305-4	2006	Protection against lightning - Part 4: Electrical and electronic systems within structures	EN 62305-4 + corr. November	2006 2006
ISO 2394	1998	General principles on reliability for structures	-	-
ISO 2533	1975	Standard atmosphere	-	-
ISO 9001	2000	Quality management systems - Requirements	EN ISO 9001	2000
ISO 19900	2002	Petroleum and natural gas industries - General requirements for offshore structures	EN ISO 19900	2002
ISO 19901-1	2005	Petroleum and natural gas industries - Specific requirements for offshore structures - Part 1: Metocean design and operating considerations	EN ISO 19901-1	2005
ISO 19901-4	2003	Petroleum and natural gas industries - Specific requirements for offshore structures - Part 4: Geotechnical and foundation design considerations	EN ISO 19901-4	2003
ISO 19902	- [1)]	Petroleum and natural gas industries - Fixed steel offshore structures	EN ISO 19902	2007 [2)]
ISO 19903	2006	Petroleum and natural gas industries - Fixed concrete offshore structures	EN ISO 19903	2006

[1)] Undated reference.

[2)] Valid edition at date of issue.

CONTENTS

INTRODUCTION

This part of IEC 61400 outlines minimum design requirements for offshore wind turbines and is not intended for use as a complete design specification or instruction manual.

Several different parties may be responsible for undertaking the various elements of the design, manufacture, assembly, installation, erection, commissioning, operation and maintenance of an offshore wind turbine and for ensuring that the requirements of this standard are met. The division of responsibility between these parties is a contractual matter and is outside the scope of this standard.

Any of the requirements of this standard may be altered if it can be suitably demonstrated that the safety of the system is not compromised. Compliance with this standard does not relieve any person, organization, or corporation from the responsibility of observing other applicable regulations.

WIND TURBINES –

Part 3: Design requirements for offshore wind turbines

1 Scope

This part of IEC 61400 specifies additional requirements for assessment of the external conditions at an offshore wind turbine site and it specifies essential design requirements to ensure the engineering integrity of offshore wind turbines. Its purpose is to provide an appropriate level of protection against damage from all hazards during the planned lifetime.

This standard focuses on the engineering integrity of the structural components of an offshore wind turbine but is also concerned with subsystems such as control and protection mechanisms, internal electrical systems and mechanical systems.

A wind turbine shall be considered as an offshore wind turbine if the support structure is subject to hydrodynamic loading. The design requirements specified in this standard are not necessarily sufficient to ensure the engineering integrity of floating offshore wind turbines.

This standard should be used together with the appropriate IEC and ISO standards mentioned in Clause 2. In particular, this standard is fully consistent with the requirements of IEC 61400-1. The safety level of the offshore wind turbine designed according to this standard shall be at or exceed the level inherent in IEC 61400-1. In some clauses, where a comprehensive statement of requirements aids clarity, replication of text from IEC 61400-1 is included.

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 60721-2-1:1982, *Classification of environmental conditions – Part 2-1: Environmental conditions appearing in nature. Temperature and humidity*
Amendment 1:1987

IEC 61400-1:2005*, Wind turbines – Part 1: Design requirements*

IEC 62305-3:2006, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

IEC 62305-4:2006, *Protection against lightning – Part 4: Electrical and electronic systems within structures*

ISO 2394:1998, *General principles on reliability for structures*

ISO 2533:1975, S*tandard Atmosphere*

ISO 9001:2000, *Quality management systems – Requirements*

ISO 19900:2002, *Petroleum and natural gas industries – General requirements for offshore structures*