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Kooperationspartner der Universitäten Duisburg-Essen
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6th Technical Conference
**Türme und Gründungen bei
Windenergieanlagen**

*Towers and Foundations for
Wind Energy Converters*

06.-07.03.2013 Essen Germany



Quelle: Prof. Bellmer Ingenieurgruppe GmbH

Tragstrukturen

Schadenstabilität

Ermüdungsnachweis

Hybridtürme

neue DIBt-Richtlinie WEA

neue Eurocodes

Türme und Gründungen bei Windenergieanlagen *Towers and Foundations for Wind Energy Converters*

Simultaneous
translation
German/English

in cooperation with the Leibniz University Hannover

Termin / Dates

06. - 07. März/March 2013

10:00 – 17:30 / 10.00 a.m. – 5.30 p.m. · 08:30 – 16:00 / 08.30 a.m. – 4.00 p.m.

Ort / Venue

Haus der Technik, Hollestraße 1, 45127 Essen, Germany

Veranstaltungsleiter / Chairman

Univ.-Prof. Dr.-Ing. Peter Schaumann, Institut für Stahlbau, Leibniz Universität Hannover

Referenten / Speakers

Univ.-Prof. Dr.-Ing. Martin Achmus, Institut für Geotechnik, Leibniz Universität Hannover

Prof. Dipl.-Ing. Horst Bellmer, Prof. Bellmer Ingenieurgruppe GmbH, Bremen

Dipl. Ing. M.Sc. Thorsten Betz, Max Bögl, Neumarkt

Jan Dubois, M.Sc., Institut für Stahlbau, Leibniz Universität Hannover

Dr.-Ing. Joachim Göhlmann, grbv Ingenieure im Bauwesen GmbH & Co. KG, Hannover

Univ.-Prof. Dr.-Ing. Peter Schaumann, Institut für Stahlbau, Leibniz Universität Hannover

Dipl.-Ing. Ralf Schüttendiebel, REpower Systems AG, Osnabrück

Zum Thema / Topic

Die Windenergie war Ende des Jahres 2011 mit 29.000 MW installierter Nennleistung bzw. 22.000 Windenergieanlagen (WEA) die tragende Säule der erneuerbaren Energien in Deutschland. Steigende jährliche Energieerträge von modernen Windenergieanlagen verbessern die Wettbewerbsfähigkeit entscheidend. An Land sind dabei Türme mit Nabenhöhen von über 100 m eine Schlüsseltechnologie.

Mit den im Jahre 2012 eingeführten neuen Eurocodes wurde auch eine Aktualisierung der **DIBt-Richtlinie für WEA** erforderlich. Sowohl Einwirkungen wie Nachweise für Türme und Gründungen von WEA werden damit novelliert und im Rahmen dieser Veranstaltung vorgestellt.

It was the wind energy sector which at the end of 2011 emerged as the mainstay of the renewable energies industry in Germany with 29,000 MW installed capacity and 22,000 wind energy converters. The increasing annual energy yields of modern WECs have improved the competitiveness of wind farms significantly. Towers with hub heights of over 100 metres are a key technology as far as onshore structures are concerned.

*The new Eurocodes introduced in 2012 has led to an updating of the **DIBt guideline covering WECs** (published by the German Civil Engineering Institute) and a revision of load calculations and stability proofs of towers and foundations. The amendments will be presented at the conference.*

Zielsetzung / Objectives

Ziel der Veranstaltung ist es, den Teilnehmern vertiefte Kenntnisse im Entwurf und den statischen Nachweisen der Tragstrukturen von Windenergieanlagen (WEA) zu vermitteln. Spezielle Themen sind dabei Schalenstabilität, Ermüdungsnachweise und konstruktive Details bei Verbindungen. Nach Teilnahme an der Fachveranstaltung haben die Teilnehmer wesentliche Grundlagen für die Bemessung von Onshore-WEA mit Stahlrohrturm, Gittermast, Spannbeton- oder hybridem Turm sowie deren Gründung erworben. Dieses Wissen lässt sich teilweise in den Offshore-Bereich transferieren.

The objective of the technical conference is to convey deeper knowledge to the participants in reference to substructure design and assessment methods of wind energy converters (WEC). Special topics deal with shell buckling, fatigue design and constructive details at connections.

After attending the technical conference, the participants will have gained the essential basics of onshore-WEC including steel tubular towers, lattice towers, prestressed concrete and hybrid towers as well as their foundations. This knowledge could be partly transferred to the area of offshore WECs.

Teilnehmerkreis / Who should attend

Ingenieure mit einem abgeschlossenen Studium und Vorkenntnissen in der Strukturberechnung, Hersteller, Offshore-Projektierer, Entscheider, Windparkbetreiber, Prüfer und Genehmigungsstellen, Ingenieure, Personen in der Offshore-Windenergiebranche

Postgraduate engineers with previous knowledge in structural design, manufacturers, project developer offshore, decision maker, windfarm operator, controller, engineers.

Inhalt / Contents

Neue Normen und Richtlinien – Eurocodes und DIBt-Richtlinie / *new standards and guidelines*
Entwurf und Bemessung von Stahlrohtürmen / *design of steel tubular towers*
Entwurf und Bemessung von Spannbetontürmen / *design of prestressed concrete towers*
Baugrunduntersuchung / *foundation soil analysis*
Fundamente / *foundations*
Offshore-Tragstrukturen / *offshore-substructures*

Hinweise / Information

Alle Veranstaltungen zum Thema Windenergie finden Sie immer unter www.hdt-essen.de/windenergie

Die Anerkennung der Ingenieurkammer-Bau Nordrhein-Westfalen §3 Abs. 2 Fort- und Weiterbildungsordnung (FuWo) ist beantragt.

Programm / Program

Mittwoch, 06. März 2013 / Wednesday, March 06, 2013

- Ab 9:30 Uhr /
From 9.30 a.m. Registrierung / *registration*
- 10:00 Uhr / 10.00 a.m. **Begrüßung und Einführung / *welcome and introduction***
- 1 10:05 Uhr / 10.05 a.m. **Überblick Tragstrukturkonzepte /
*overview of various substructure concepts***
Univ. Prof. Dr.-Ing. Peter Schaumann
- 2 10:30 Uhr / 10.30 a.m. **Lastannahmen und Gesamtsimulation / *load assumptions and
integrated simulation***
Jan Dubois, Msc.
- 11:30 Uhr / 11.30 a.m. Kaffeepause / *Coffee Break*
- 3 11:45 Uhr / 11.45 a.m. **Entwurf und Konstruktion von Spannbetontürmen und DIBt-Richtlinie /
*design and construction of prestressed concrete towers and
DIBt-guideline***
Dr.-Ing. Joachim Göhlmann
- 13:15 Uhr / 1.15 p.m. Gemeinsames Mittagessen / *Lunch Break*
- 4 14:15 Uhr / 2.15 p.m. **Stahlrohtürme / *steel tubular towers***
Univ. Prof. Dr.-Ing. Peter Schaumann
- 16:00 Uhr / 4.00 p.m. Kaffeepause / *Coffee Break*
- 5 16:15 Uhr / 4.15 p.m. **Hybrider Windkraftturm System Max Bögl /
*hybrid precast concrete tower system Max Bögl***
Dipl.-Ing. M.Sc. Thorsten Betz
- 17:30 Uhr / 5.30 p.m. Ende des ersten Tages / *End of the 1st conference day*
- ca. 19:30 Uhr / 7.30 p.m. **Erfahrungsaustausch bei einem Imbiss /
*followed by exchange of knowledge, ideas
and experiences with fellow delegates and speakers over snack***

Donnerstag, 07. März 2013 / Thursday, March 07, 2013

- 6 8:30 Uhr / 8:30 a.m. **Baugrunduntersuchungen und Gründungen /
*foundation soil analyses and foundations of wind energy converters***
Univ. Prof. Dr.-Ing. Martin Achmus
- 10:15 Uhr / 10.15 a.m. Kaffeepause / *Coffee Break*
- 7 10:45 Uhr / 10.45 a.m. **Spannbeton-Fertigteil-Türme und Anwendungserfahrung /
*prestressed, precast concrete towers and application experience***
Prof. Dipl.-Ing. Horst Bellmer
- 12:00 Uhr / 12.00 a.m. Gemeinsames Mittagessen / *Lunch Break*
- 8 13:00 Uhr / 1.00 p.m. **Einführung Offshore-WEA / *introduction to offshore WECs***
Univ. Prof. Dr.-Ing. Peter Schaumann
- 14:30 Uhr / 2.30 p.m. Kaffeepause / *Coffee Break*
- 9 14:45 Uhr / 2.45 p.m. **Praktische Erfahrungen mit ausgeführten Offshore-Projekten /
*practical experiences made with erected offshore-projects***
Dipl.-Ing. Ralf Schüttendiebel
- 15:45 Uhr / 3.45 p.m. Abschlussdiskussion / *Final Panel Discussion*
- 16:00 Uhr / 4.00 p.m. **Ende der Veranstaltung / *end of conference***

Teilnahmegebühr / Conference Fee

Nicht-Mitglieder / *Non-Members*: € 990,00 – HDT-Mitglieder / *HDT-Members*: € 895,00

jeder weitere Teilnehmer einer Firma zahlt / *further employees of one company book for:*

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Einschließlich veranstaltungsgebundener Arbeitsunterlagen sowie Mittagessen und Pausengetränke /
Including event-connected documentation, lunches and beverages.

For your information: the documentation available is printed in the German language, however they include summaries in English.

Kurztitel / Short Title: Türme und Gründungen Windenergieanlagen /
Towers and Foundations for Wind Energy Converters

Veranstaltungs-Nr. / Conference No: N-H010-02-301-3

Sie können sich auch online unter www.hdt-essen.de/W-H010-02-301-3 anmelden

Please register at www.hdt-essen.de/W-H010-02-301-3

Ausstellung / Exhibition / Sponsoring

Nutzen Sie die Fachveranstaltung, um Ihre Innovationen, Produkte und Lösungen zu präsentieren. Sie können wählen zwischen einer Tischauslage, Ausstellungsfläche beziehungsweise einer Sponsoringmöglichkeit. Ansprechpartnerin ist Sabine Gebauer (s.gebauer@hdt-essen.de, +49/201/1803-329). Informationen finden Sie auch beim Download des Flyers (letzte Flyerseite) im Web: www.windenergie-info.de.

Use this international conference to present your innovations, products and solutions. You can choose between table-top display, floor exhibition space or sponsorship. Enquiries: Sabine Gebauer (s.gebauer@hdt-essen.de, +49/201/1803-329). Simultaneous translation German/English will be provided during the symposium.

Ihre Anmeldung

Bitte nennen Sie online, per E-Mail www.hdt-essen.de/anmeldung, anmeldung@hdt-essen.de per Fax, per Post nach Anmeldung erhalten Sie Anfahrtsbeschreibung und Hotelauswahl
Ihren Vor- und Nachnamen, Ihren Titel, Firmen-/Rechnungsanschrift, Ihre Abteilung, Telefon, Fax, E-Mail, Verant.-Nr., Kurztitel, Datum
0201/1803-280, Haus der Technik e.V., 45117 Essen

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mit komfortabler Suchfunktion nach Termin, Ort, Stichwort

Ihre Fragen beantworten Ihnen

zur Information	Manuela Hartwich ☎ 0201/1803-1 Andrea Wiese ☎ 0201/1803-1	Katrin Saager ☎ 0201/1803-344	☎ -269 ☎ -346	information@hdt-essen.de
fachlich zur Anmeldung	Dipl.-Ing Bernd Hömberg ☎ 0201/1803-249 www.hdt-essen.de/anmeldung Monica Martins ☎ 0201/1803-212	Nadine Sandner ☎ 0201/1803-211	☎ -280	b.hoemberg@hdt-essen.de anmeldung@hdt-essen.de
zur Hotelbuchung	www.hdt-essen.de/hotel Nuri Grohnert ☎ 0201/1803-322		☎ -276	hotel@hdt-essen.de

Unsere AGB finden Sie im Internet und Programmbuch

Zahlungsweise per Überweisung oder per Kreditkarte (VISA, MASTERCARD, AMEX und Diners Club)
Stornierung Bei Umbuchung oder Stornierung einer Anmeldung kann das HDT eine Gebühr von 30,- € erheben. Diese Gebühr entfällt für HDT-Mitglieder. Für alle Anmeldungen, die nicht schriftlich bis 7 Tage vor Veranstaltungsbeginn zurückgezogen werden, muss die Teilnahmegebühr voll berechnet werden.
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Wir erwarten Sie in Essen

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HDT-Newsletter unter www.hdt-essen.de/newsletter

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Please state your Forename(s) and Surname, Title, Job Title, Company/Organisation, Department, Address, Mailing Address (if different), Invoice Address (if different), Telephone & Fax No., E-Mail Address, Event Short-Title and Dates
by fax, by post +49.(0)201.1803.280, Haus der Technik e.V., 45117 Essen
E-Mail, online anmeldung@hdt-essen.de, www.my-windenergy.com
after Registration You will be sent a venue access map and directions as well as a list of hotels.

Events Diary at www.hdt-essen.de

Convenient search function facility based on subjects, dates, venues and key words available

Enquires dealt by

Switchboard	Manuela Hartwich ☎ 0201/1803-1 Andrea Wiese ☎ 0201/1803-1	Katrin Saager ☎ 0201/1803-344	☎ -269 ☎ -346	information@hdt-essen.de
Specialised Subject/Event Specific Registration	Dipl.-Ing Bernd Hömberg ☎ 0201/1803-249 www.hdt-essen.de/anmeldung Monica Martins ☎ 0201/1803-212	Nadine Sandner ☎ 0201/1803-211	☎ -280	b.hoemberg@hdt-essen.de anmeldung@hdt-essen.de
Hotel Booking	www.hdt-essen.de/hotel Nuri Grohnert ☎ 0201/1803-322		☎ -276	hotel@hdt-essen.de

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Look forward to welcoming you at Essen

Haus der Technik, Hollestr. 1, 45127 Essen, Germany

HDT-Information www.hdt-essen.de/windenergie

ANMELDUNG / REGISTRATION FORM

Fachveranstaltung Türme und Gründungen Windenergieanlagen /
Conference Towers and Foundations for Wind Energy Converters
06.-07. März / March 06 - 07, 2013 (N-H010-02-301-3)

Bitte an Fax 0201 / 1803-280 senden / Please return to fax +49 / 201 / 18 03-280

Veranstaltungsteilnehmer / Participant

Name, Vorname(n) / Family Name, Firstname(s) _____
Firma / Company _____
Abt. / Department _____
Straße / Street _____
PLZ, Stadt / Zip-Code, City _____
Land / Country _____
Tel. / Phone _____ Fax _____
E-mail _____

Rechnungsanschrift / Invoice Address (falls abweichend von o.g. Adresse / if different from above)

Firma / Company _____
Name, Vorname(n) / Family Name, Firstname(s) _____
Abt. / Department _____
Straße / Street _____
PLZ, Stadt / Zip-Code, City _____

	1. Teilnehmer 1 st Participant	2. Teilnehmer 2 nd Participant	(Gilt nur bei gleichzeitiger Anmeldung Group prices are only available if the participants are booked as a common account)
Nichtmitglied HDT / Regular Participant (non-member HDT)	<input type="checkbox"/> € 990,00	<input type="checkbox"/> € 745,00	
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nach Rechnungserhalt (nur für europäische Firmen) /
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Type of Credit Card - Please check one VISA MasterCard Diners Club AMEX

Card Number

Exp. Date

Signature (Required for Authorization)

Hotelreservierung / Accommodation form

Bitte buchen Sie / Please book Einzelzimmer / Single Room Doppelzimmer / Double Room

_____ 2* Hotel _____ 3* Hotel _____ 4* Hotel

Im Fall, dass alle Zimmer des Kontingents der gewünschten Kategorie belegt sind, bin ich mit einem Hotel von höherer / niedrigerer Kategorie einverstanden. In case the quota of rooms at the disposal of Haus der Technik is already booked, I hereby agree to request accommodation at a Hotel of a higher / lower category.

Ankunftstag/ _____ ungefähre Uhrzeit/ _____ Abreisetag/
Day of arrival _____ approx. time _____ day of departure _____

Stornobedingungen

Die Reservierung ist verbindlich. Stornierungen müssen bis spätestens 48 Stunden vor Anreise beim Hotel schriftlich vorgenommen werden. Booking of accommodation is binding. Cancellation must be notified in writing at the hotel. Dead-line for cancellations is 48 hrs before arriving.

Datum / Unterschrift Date / Signature

ANMELDUNG AUSSTELLER / APPLICATION FORM EXHIBITOR

Fachveranstaltung Türme und Gründungen Windenergieanlagen /
Conference Towers and Foundations for Wind Energy Converters
06.-07. März / *March 06 - 07, 2013 (N-H010-02-301-3)*

Bitte an Fax 0201 / 1803-263 senden / *Please return to fax +49 / 201 / 18 03-263*

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Name, Vorname(n) / *Family Name, Firstname(s)* _____

Abt. / *Department* _____

Straße / *Street* _____

PLZ, Stadt / *Zip-Code, City* _____

Veranstaltungsteilnehmer / *Participant*

Name, Vorname(n) / *Family Name, Firstname(s)* _____

Firma / *Company* _____

Abt. / *Department* _____

Straße / *Street* _____

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Land / *Country* _____

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Optionen / *Options*

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Take advantage of this expert event and present your innovations, products and solutions to the public. You may choose between:

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<i>Exclusiv booth (2x6 meters), including free attendance of two persons</i> | <input type="checkbox"/> € 2995,- |

Bruttopreise

Eine Anmietung ohne Teilnahme ist nicht möglich.
Renting a table display or a booth without seminar registration is not possible!

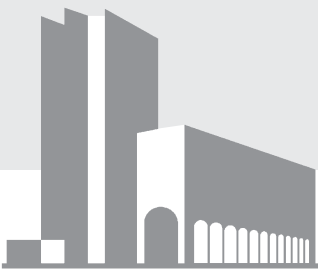
Wir sind einverstanden, dass Ausstellerlisten an Journalisten übermittelt sowie im Internet publiziert werden.
We have no objections that lists of exhibitors are being passed on to journalists as well as publication in the internet.

Mit dieser Anmeldung erkennen wir die Teilnahmebedingungen des Haus der Technik e.V. an.
By signing this application form we accept as binding the Conditions of Participation and the General Terms and Conditions for of HdT.

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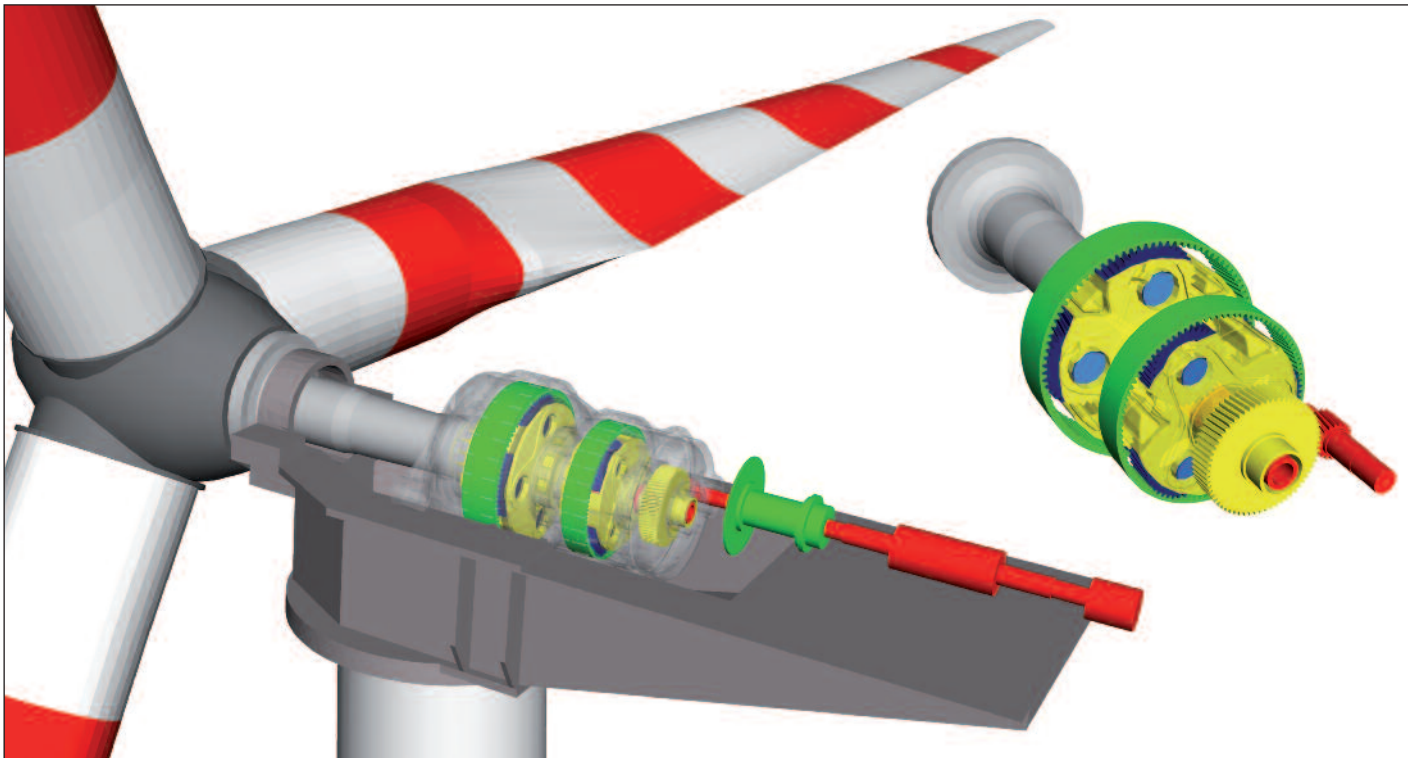


HAUS DER TECHNIK

Außeninstitut der RWTH Aachen
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Münster - Bonn - Braunschweig

8th Technical Conference

Drive trains in wind turbines



March 12-13, 2013

Chairman

Prof. Dr.-Ing. Berthold Schlecht, TU Dresden

Venue

Haus der Technik e.V. Hollestr. 1, 45127 Essen, Germany

simultaneous translation german/english

Drive trains in wind turbines

Requirements for gear boxes, couplings and bearings

Chairman

Prof. Dr.-Ing. Berthold **Schlecht**, Institut für Maschinenelemente und Maschinenkonstruktion, TU Dresden

Speakers

Dipl.-Ing. Hanspeter **Dinner**, EES Gear GmbH, Menzingen (CH)
Dr.-Ing. Christoph **Heilmann**, BerlinWind GmbH, Berlin
Dipl.-Ing. Jürgen **Holz Müller**, 8.2 Ingenieurbüro Aurich
Dr.-Ing. Frank-Dieter **Krull**, Eickhoff Antriebstechnik GmbH, Bochum
Dipl.-Ing. Franz **Mitsch**, ESM Energie- und Schwingungstechnik Mitsch GmbH, Rimbach-Mitlechtern
Dipl.-Ing. Thomas **Rosenlöcher**, Institut für Maschinenelemente und Maschinenkonstruktion, TU Dresden
Dr.-Ing. Tobias **Schulze**, DriveConcepts GmbH, Dresden
Dipl.-Ing. Edgar **Sensen**, Gothaer Allgemeine Versicherung AG, Köln
Prof. Dr.-Ing. Christoph **Spensberger**, Hochschule für Technik und Wirtschaft (FH), Dresden
Dr.-Ing. Karl **Steingröver**, Germanischer Lloyd Industrial Services GmbH, Hamburg
Dipl.-Ing. Kirsten **Tschauder**, bp Europa SE, Industrial Lubricants & Services, Mönchengladbach
Dr.-Ing. Rainer **Wirth**, GfM - Gesellschaft für Maschinendiagnose, Berlin
Dipl.-Chem. Mark **Zundel**, Winergy AG, Voerde

Dates

Tuesday, March, 12th 2013, 10:00 a.m. - 5:45 p.m.
Wednesday, March, 13th 2013, 09:00 a.m.- 3:00 p.m.

Venue

Haus der Technik, Hollestr. 1, 45127 Essen, Germany

Objectives

To inform the delegates about the basic structure of wind turbines and the resulting demands put on the main drive train. Based on current damage images possibilities will be presented of stress and strain related assessments of gears, shafts and bearings in transmissions, taking into account the occurring dynamic loads. Modern methods for diagnosis of oscillations during operations as well as presentations on the current drive concepts and tribology round up the event.

Subject

For the past several years, the global incremental growth rate of the share of electricity production in renewable energies has been continually expanded. The wind energy converter (WEC) market plays a significant role and parallel to Germany, is also expanding in many other countries around the globe.

Due to limited accessibility, maintenance and repair works on WECs are expensive and time consuming, thus, downtime reduces both the energy yield as well as the Return on Investment; therefore, a most reliable and yet economic design of wind turbines is required, which render the greatest exact knowledge of operational capacities possible and secure protection from overloading.

Based on the facts of fundamental types concerning the erection and functionality of WECs, we will give attention to the arising demands on the components and sub-assemblies of main drive trains as well as those familiar weak points that result. For this purpose, the status quo of the public display procedure and method of calculation for bearings, clutches and gear transmissions with spur-gear and carrier-pinion will be introduced; whereas the possibilities of taking influence through gearing corrections will also be pointed out. In addition, modern simulation processes (multi-body simulation in connection with the finite-elements-method) for the determination of realistic load assumptions will be dealt with as well as the possibility and limits of use of machine diagnostic procedures. The event will be rounded off by conveying basic coherencies concerning lubrication systems of drive-technical components.

Who should attend

Developers, designers of the manufacturers and suppliers, staff of the operators and power utilities, insurances, banks and experts.

Program

1st Day

- 10:00 a.m.
1 **Welcome and opening remarks**
High-performance drivelines with gearboxes for wind turbines
Prof. Dr.-Ing. Berthold Schlecht, TU Dresden
- 11:00 a.m. **Coffee break**
- 11:15 a.m.
2 **Development of WEC gearboxes with optimized vibration control taking account of the requirements as defined by wind turbine producers**
Dipl.-Chem. Mark Zundel, Winergy AG, Voerde
- 12:00 a.m.
3 **Certification of wind energy converters: state of the art and future trends**
Dr.-Ing. Karl Steingröver, Germanischer Lloyd Industrial Services GmbH, Hamburg
- 12:45 p.m. **Lunch**
- 01:45 p.m.
4 **Damage occurrence in wind energy converters from the point of view of an insurance company**
Dipl.-Ing. Edgar Sensen, Gothaer Allgemeine Versicherung AG, Köln
- 02:30 p.m.
5 **Possibilities and limits of condition monitoring of drivelines in wind energy converters – Basics**
Dr.-Ing. Rainer Wirth, GfM - Gesellschaft für Maschinendiagnose, Berlin
- 03:15 p.m. **Coffee break**
- 03:30 p.m.
6 **Vibration analysis in wind energy converters on the basis of multi-body simulation (MBS) and finite element method (FEM)**
Dr.-Ing. Thomas Rosenlöcher, Dipl.-Ing. Thomas Schulze, TU Dresden
- 04:15 p.m.
7 **Real-world experience with wind energy converter gearboxes and statistical data assessment from the point of view of an official expert**
Dipl.-Ing. Jürgen Holzmüller, 8.2 Ingenieurbüro, Aurich
- 05:45 p.m. **End of first day**

2nd Day

- 09:00 a.m. **Summary of first day**
- 09:15 a.m.
8 **Tribological aspects of and lubrication requirements of wind energy converter gearboxes**
Dr.-Ing. Frank-Dieter Krull, Eickhoff Antriebstechnik GmbH, Bochum
- 10:00 a.m. **Coffee break**
- 10:15 a.m.
9 **Lubricants and wind energy converters: highest challenges for development, testing and application**
Dipl.-Ing. Kirsten Tschauder, BP Europa SE, Mönchengladbach
- 11:00 a.m.
10 **Particular challenges for couplings in wind energy converters**
Prof. Dr.-Ing. Christoph Spensberger, Hochschule für Technik und Wirtschaft Dresden
- 11:45 a.m.
11 **Damage avoidance in wind energy converters by balancing main rotor and driveline arrangement**
Dr.-Ing. Christoph Heilmann, BerlinWind GmbH, Berlin
- 12:30 p.m. **Lunch**
- 01:15 p.m.
12 **Reduction of vibrations and forces in the driveline of wind energy converters**
Dipl.-Ing. Franz Mitsch, ESM GmbH, Rimbach
- 02:00 p.m.
13 **Integrated design, optimization, verification and drawings production of toothings for wind energy converter gearboxes**
Dipl.-Ing. Hanspeter Dinner, EES Gear GmbH, Menzingen (Schweiz)
- 02:45 p.m.
14 **Stresses and strains in spur and planetary gearboxes**
Dr.-Ing. Tobias Schulze, DriveConcepts GmbH, Dresden
- 03:45 p.m. **End of Conference**

Registration Fees

Non-Members: €990,00 – HDT-Members: €895,00

please quote membership number

includes attendance to the sessions, bound conference proceedings, lunches, refreshments and snack

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Short Title: Getriebe WEA

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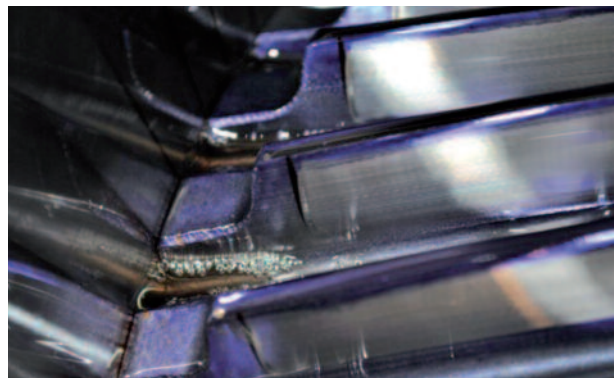
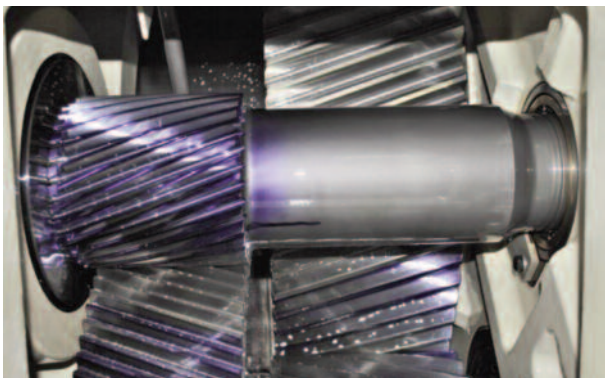
Enquiries: Sabine Gebauer (s.gebauer@hdt-essen.de, +49/201/1803-329).

Simultaneous translation German/English will be provided during the symposium.

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Information

A simultaneous translation German/English will be offered.



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Please state your Forename(s) and Surname, Title, Job Title, Company/Organisation, Department, Address, Mailing Address (if different), Invoice Address (if different), Telephone & Fax No., E-Mail Address, Event Short-Title and Dates
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E-Mail, online anmeldung@hdt-essen.de, www.my-windenergy.com
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Sales Tax/VAT Haus der Technik registration fees are exempted from tax in accordance with § 4 Nr. 22 (German Sales/Turnover Tax Law)

Look forward to welcoming you at Essen

Haus der Technik, Hollestr. 1, 45127 Essen, Germany

HDT-Information www.my-windenergy.com

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*Drive trains in wind turbines
(E-H010-03-480-3) March 12-13, 2013, in Essen/Germany*

Please return to fax +49 / 201 / 18 03-280

Participant

Family Name, Firstname(s) _____
Company _____
Department _____
Street _____
Zip-Code, City _____
Country _____
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Company _____
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Regular Participant (non-member HDT) € 990,00
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*further employees of one company book for: Non-Memebers:
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Credit Card Payment

Type of Credit Card - Please check one VISA MasterCard Diners Club AMEX

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Please book Single Room Double Room

_____ 2* Hotel _____ 3* Hotel _____ 4* Hotel

In case the quota of rooms at the disposal of Haus der Technik is already booked, I hereby agree to request accommodation at a Hotel of a higher / lower category.

Day of arrival _____ approx. time _____ day of departure _____

Stornobedingungen

Booking of accommodation is binding. Cancellation must be notified in writing at the hotel. Dead-line for cancellations is 48 hrs before arriving.

Date / Signature

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Please return to fax +49 / 201 / 18 03-263

Invoice Address Participant

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Family Name, Firstname(s) _____

Department _____

Street _____

Zip-Code, City _____

Participant

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Options

Use this conference and event to present your innovations, products and solutions to an expert public. You may choose between:

- table displays (0.5 x 1.0 meter), including free attendance of one person €1345,-
- Basic booth (1 x 2 meters), including free attendance of two persons €1995,-
- Standard booth (1 x 4 meters), including free attendance of four persons €2295,-
- Exclusiv booth (2 x 6 meters), including free attendance of four persons €3585,-

Renting a table display or a booth without seminar registration is not possible!

We agree that lists of exhibitors will be passed on to journalists as well as published on the internet.

By signing this application form we accept as binding the Conditions of Participation based on the the General Terms and Conditions of HdT.

We hereby agree that Haus der Technik send us information without having been requested to do so.

Place and date / Stamp and legally binding signature

Contact: Fr. Sabine Gebauer, Tel: +49-(0)201-1803-329, eMail: s.gebauer@hdt-essen.de