EES GEAR

The Independent Authority in Gear Design

Expertise

- Complex Geared Systems
- Metallic and Plastic Gears
- System Deflection, Tooth Contact Analysis
- Rolling Bearings
- Training, Mentoring
- Technical Writing

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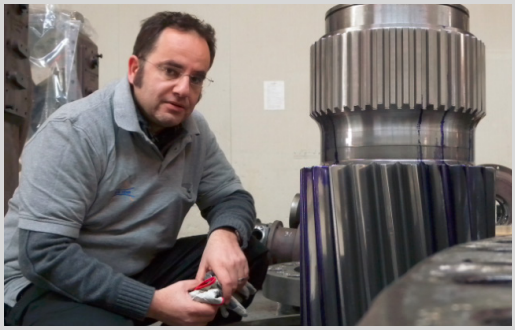
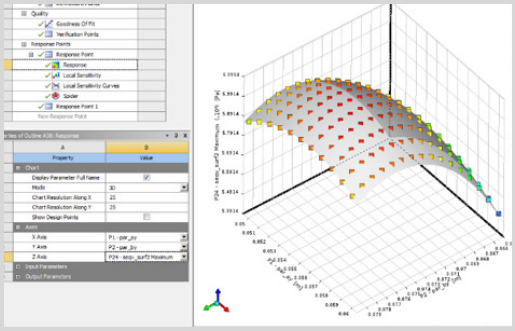
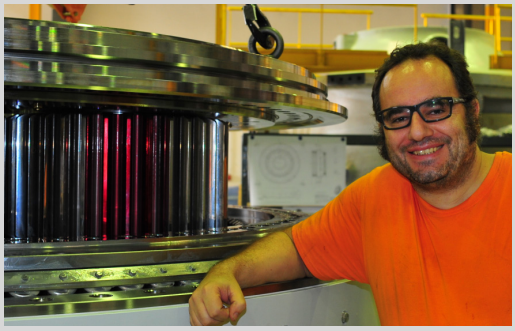
- linkedin.com/in/hans-peter-dinner-58207b7a/

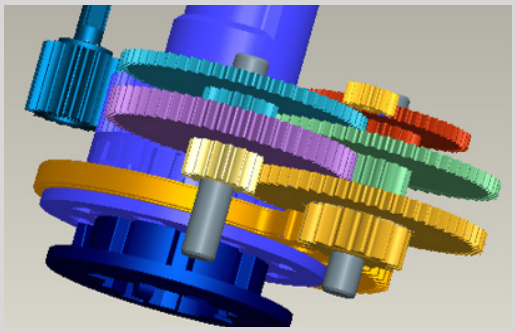
EES Gear GmbH

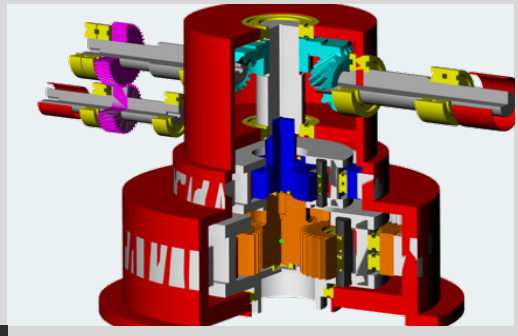
- Weid 31, 6313 Menzingen, Switzerland
- CHE-321.901.270
- Established 2026











Industries and Expertise

Work with EES for

- Gearbox concepts, specifications, designs
- Gear and bearing technology
- Technology surveys
- Detailed gear, bearing and FEM calculations
- Certification assistance
- Sourcing and quality control assistance
- Gearbox assembly supervision
- Components and gearbox test witnessing
- Failure analysis, dispute assistance

Professionals in these industries request our services

- Wind industry, main, pitch and yaw gearboxes / main, pitch and yaw bearings
- Mill drives, winches and cranes
- Aerospace gears and gearboxes
- Roller and slewing bearing manufacturers
- Industrial gearing, actuators and geared motors
- On- and off-road vehicle transmissions, axles and engine gear trains
- Plastic gears, valve actuators

Our key expertise is in the fields of

- Gear geometry, gear strength, gear optimization
- Bearing rating, load distribution analysis
- Gearbox concepts
- Engineering analysis for certification
- Failure analysis and litigation support

Location

- Offices are located in central Switzerland
- 45 minutes from Zurich airport
- Easy to reach by air, rail or road

"... Thank you for the training it was very interesting for all of us. You have been very clear, you have touched interesting topics and I really appreciate the rigorous approach in the exposition and in the resolution of the problems ..."

Tiziano Cividino, Chief Engineer, PMP PRO-MEC S.p.A, Italy

Selected Projects: Wind industry

Main gearbox, Spain
- Assessment of tooth flank fracture failure

3 MW gearbox assembly supervision, Germany
- Prototype assembly supervision and reporting

8 MW gearbox, Germany
- Conceptual and overall design, engineering analysis

3 MW gearbox, China
- Design review, testing supervision
- Engineering analysis for certification

3 MW gearbox, Spain
- Design and engineering analysis review
- Test witnessing and assessment at supplier site.

6.x MW main gearbox, Germany, China
- Design, gear technology
- Engineering analysis, FEM, parts drawings, part lists

1 MW main gearbox India
- Engineering analysis for certification, FEM analysis

Gear detail design, 1.6 MW main gearbox, India
- Preliminary design, gear and bearing selection
- Mass tables, gear and bearing data

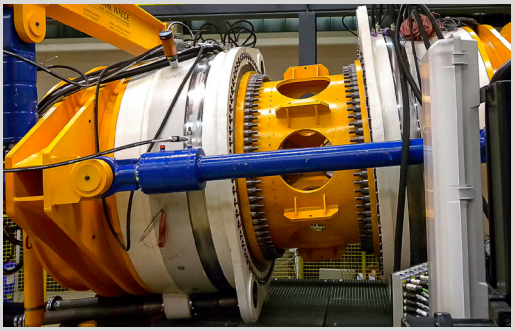
3.x MW main gearbox, Germany, China
- Conceptual design, gear technology
- Engineering analysis, FEM, parts drawings, part lists

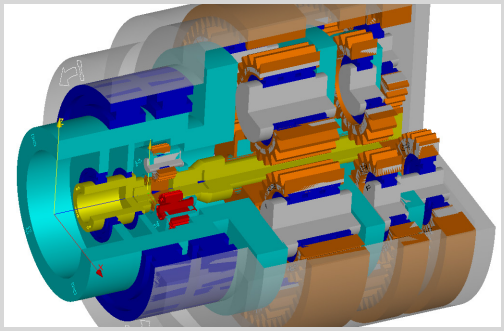
3.x MW drive-train concept, Switzerland
- Drive-train concept for cost and feasibility analysis

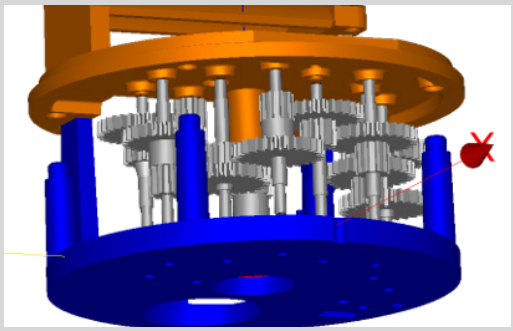
2.x MW main gearbox, Germany
- Concept and detail design, manufacturing drawings, engineering analysis, certification assistance
- Back to back test rig concept, testing supervision and reporting

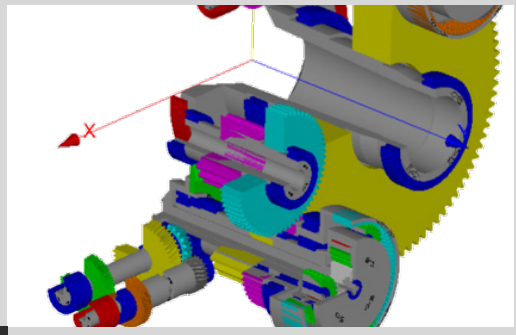
„... Hello Mr. Dinner, All test with new gear corrections until now have shown vibration level reduction.
Best regards, Jose-Luis Roman ..."

Jose-Luis Roman, Head Mechanical Design, Alstom Wind, Spain









Selected Projects: Industrial, Aerospace

UAV helicopter gearbox technology, Korea
- Helicopter main gearbox technology survey
- Turbine reduction gearbox technology survey
- Flap actuator technology survey

Cement mill gearbox, India
- Overall design and rating
- Gear modifications
- Installation and commissioning assistance

Planetary gearbox, four stage, Italy
- Failure investigation
- Gear optimization, system deformation analysis

Auxiliary drive for helicopter, UK
- Gear design and rating
- Lubrication and scuffing rating review

Vertical roller mill gearbox, France
- Concepts comparison, gear modifications

Plastic gear based actuator, China
- Tooth form optimization
- Strength rating for elevated temperature

Bevel-helical gearbox for mining, Germany
- Gear modifications
- Final strength rating with load spectrum

Crane planetary gearbox, China, Finland
- Overall design, components rating, gear detail design

Bucket wheel excavator, two speed gearbox, Germany
- Gear and bearing rating and optimization

Aerospace actuator gearboxes, China
- Material selection for low and high temperature, vacuum, manufacturing drawings, tolerance analysis
- FEM, gear and bearing rating

"... Dear Hanspeter, our many conversations over the years have always been truly inspiring, marked by clarity of thought, technical depth, and a genuine interest in people and collaboration. ... encouraged us to pursue our path at ZHAW and to further develop our research in gears ..."

Hans-Jörg Dennig, ZHAW, Switzerland

Selected Projects: Bearings

Pitch and yaw bearing assessment, Germany
- Supplier assessment, engineering analysis review

Main bearing assessment, Germany
- Supplier assessment, engineering analysis review

Slewing bearing, 5.5MW turbine, Korea
- Static, life and stress rating, hardness depth
- For DNVGL certification

Investigation of wear effects, Spain
- Slewing gears for wind turbines, gear optimization

Gearbox and main shaft bearings, Germany
- 1.6MW wind gearbox with integrated main shaft
- For bearing OEM

Calculation for certification, Germany
- GL certification for four gearboxes
- For a bearing supplier

Calculation of pitch bearing, China
- Calculation along NREL DG 03

Re-calculation of main bearing, India, Japan
- Direct drive wind turbine, supplier analysis assessment

Analysis of a >5m slewing bearing, Korea
- Ship unloader application
- FEM calculation combined with ISO16281

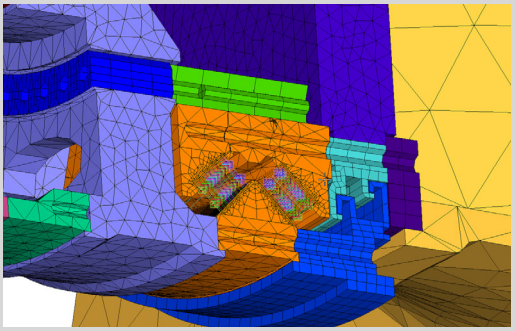
Re-calculation for certification, India, Italy
- Wind turbine pitch/yaw bearing, supplier assessment

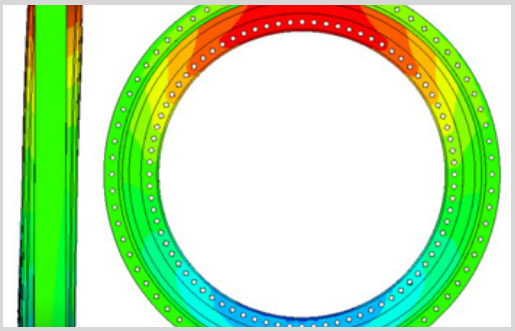
Analysis review India, Korea
- Certification assistance of pitch/yaw bearing

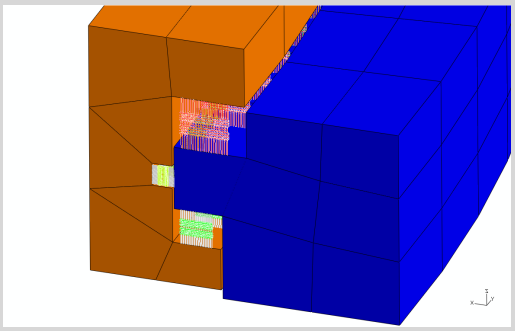
Comparative analysis, Germany
- For wind turbine pitch and yaw bearings
- For different suppliers with unified approach

"...Thanks to our engineer team being assisted by EES Gear GmbH, we were able to complete this project on time and were able to confirm optimal contact patterns in the gears during test, as predicted by EES to deliver the best in class product to our customer ..."

N. D. Kulkarni, General Manager, Premium Transmission

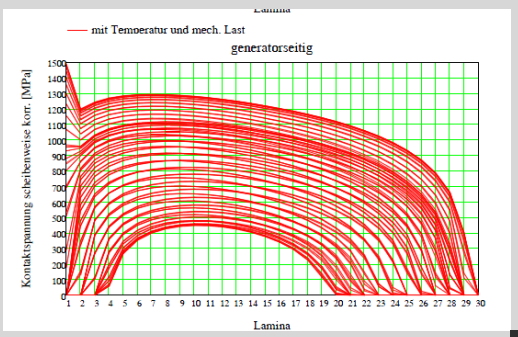


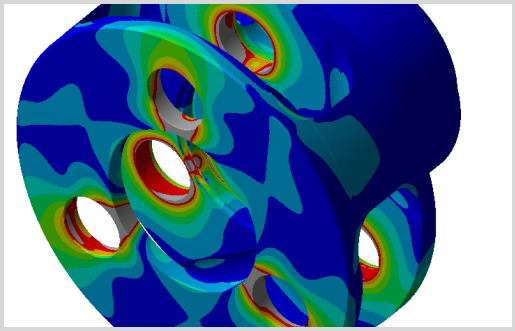


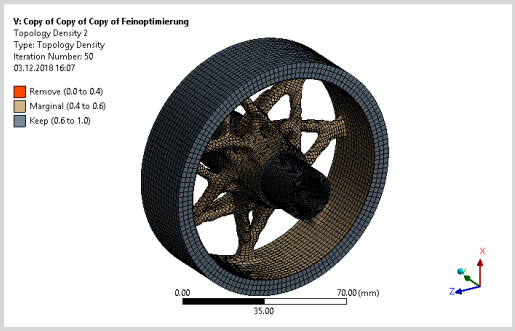


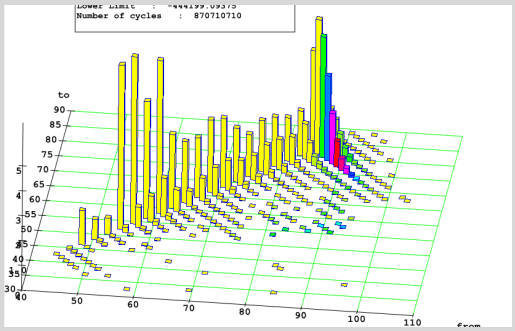
$$fcm \cdot \left(\cos\left(\alpha \cdot \frac{\pi}{180}\right)\right)^{0.7} \cdot z^{\frac{2}{3}} \cdot d^{1.8} \cdot \tan\left(\alpha \cdot \frac{\pi}{180}\right)$$

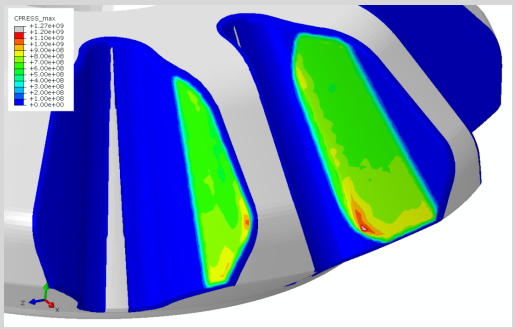
$$fcm \cdot \left(\cos\left(\alpha \cdot \frac{\pi}{180}\right)\right)^{0.7} \cdot z^{\frac{2}{3}} \cdot d^{1.4} \cdot \tan\left(\alpha \cdot \frac{\pi}{180}\right)$$

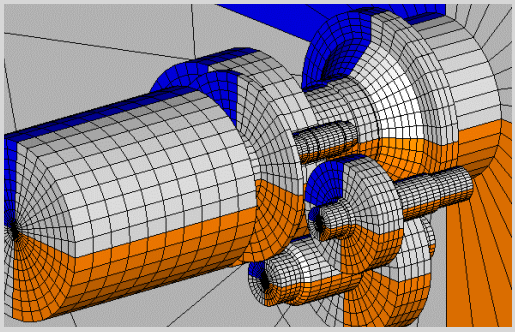


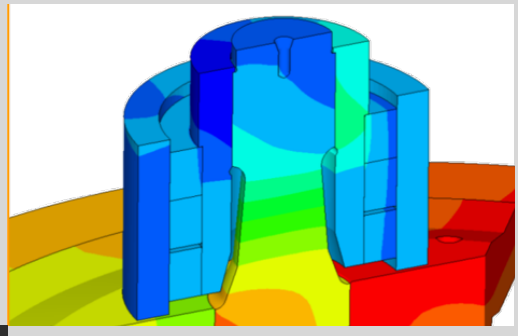












Selected Projects, FEA

Helical wind gearbox housing for certification, Germany
- Welded housing, static and fatigue rating
- Considering main shaft, bearing and bolt forces

Flexpin analysis, Germany
- Fatigue verification with time series, stiffness optimization

Planetary carrier fatigue rating, India
- For 1MW wind turbine gearbox, along GL guideline

Complete wind turbine drive train, deformation, Germany
- Including DRTRB stiffness, influence of main bearing deformation on LSS planetary stage

Housing, worm gearbox, India
- Stress distribution and strength assessment

Forged bevel gears for differential, China
- Contact stress calculation for whole meshing cycle

Planetary gearbox, load distribution, Germany
- Calculation of Kγ with random manufacturing errors
- Using FEM model controlled by scripts

Rating for certification, pitch and yaw drives, Korea
- Static, fatigue strength of housing, carriers, GL approval

FEM analysis types, through partners
- Static or modal analysis
- Non-linear (deformation, contact, material)
- ABAQUS, FEMAP, ANSYS Workbench
- Tooth contact analysis, bearing modeling

Technologies
- Fatigue analysis of welded, machined, cast parts
- Synthetic S-N curves, load spectra and time series
- Planetary gearbox load distribution analysis
- Assembly simulation to consider e.g. bolt pretension

"... Sometimes, getting the certificate for a new product is difficult due to the technical requirements and also because of the deep technical discussions required with the certification agency. ... we are happy to outsource to EES Gear GmbH ..."

Mr. Chang-kyu Shin, Haisung Good Three Co., Ltd., Korea

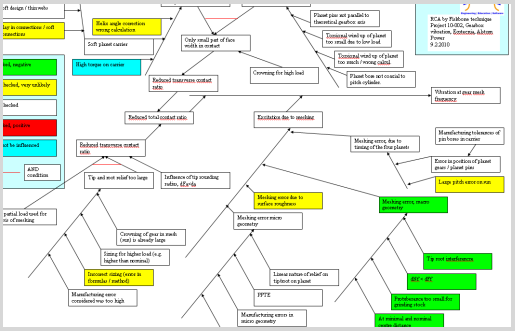
Failure Analysis

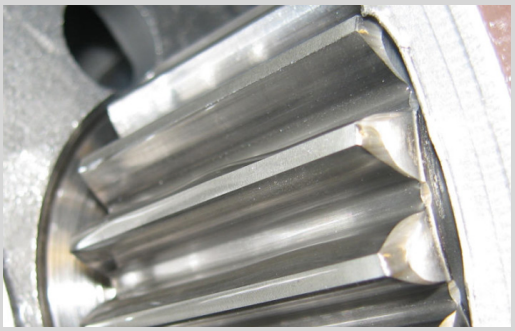
Approach
- On site inspection
- Analysis and reporting
- Root Cause Analysis
- Gear failure analysis and classification
- FMEA
- Probabilistic life rating

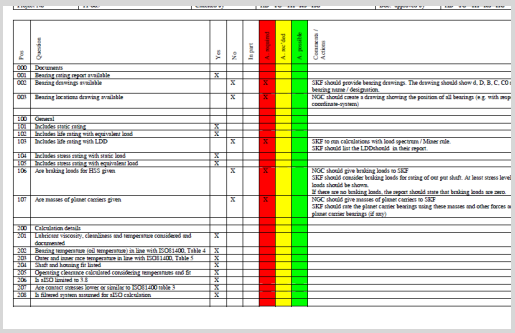
Projects
- Wind gearbox vibration, Germany, Spain
- Turbo planetary gear failure, Switzerland
- Tunnel boring machine winch, Switzerland
- Four stages planetary gearbox, Italy
- Shaft breakage, India
- Planetary gearbox, oil platform, Norway

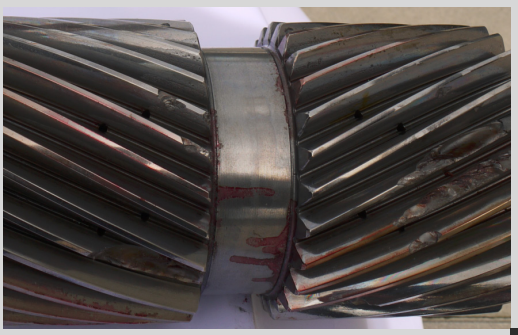
Supplier development assistance in
- Sourcing of machined parts
- Gear manufacturing through selected partners
- Quality assurance, assembly supervision
- Assessment of gearbox suppliers on technical level

Furthermore, we offer
- Design FMEA
- Prototype assembly supervision
- Assembly and acceptance documentation
- Assembly instructions and manuals
- Final inspection
- Staff instructions
- Documentation
- Inspection after testing or after operation
- Certification assistance
- Sourcing assistance



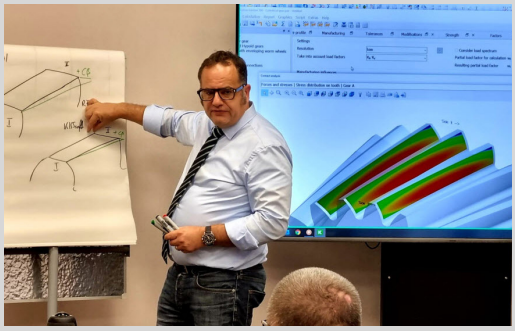


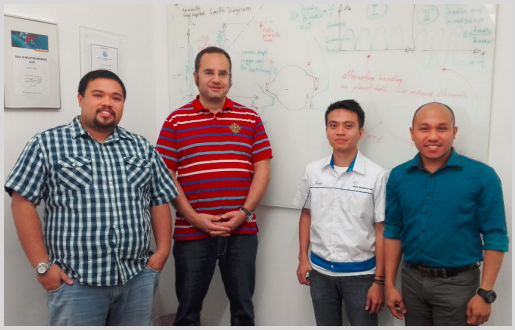




"... Dear Mr Dinner, all the best wishes from my side for your next professional experience !! I' m sure you will be successful, as usual ! ... Many, many of us, people spending time around gears, have to thank you ..."

Enzo Cognini, R&D Freelancer, Italy





Services

Hundreds of engineers have been trained by EES on
- Wind gearboxes / slewing bearings technology
- Plastic gears, planetary gearing
- KISSsoft software
- Gear geometry and strength, theory and standards
- Shaft and bearing rating, bearing theory

Business development
- Strategy development
- Promotion and sales
- Key account management
- Partner scouting, selection, onboarding and training
- Employee mentoring and assessment

Standardization work
- Member of ISO/TC 60/SC 2/WG 6
- President of SNV NK 25
- Comparison and assessment of gear rating standards
- Training on shaft, bearing, gear standards

Supplier assessment
- Commercial negotiations
- Technology assessment
- Test supervision
- Processes review, assessment and documentation

Test witnessing
- Test planning, test rig design
- Test execution and supervision
- Reporting and assessment
- Plastic gear testing

Partners
- ZHAW Switzerland, plastic gear testing
- Longator S.r.l., plastic gear testing
- BAUHAR, plastic gear optimization and testing
- Ingenis AG, MET GmbH, ZHAW for FEA
- NextGen Gears Pvt., Ltd. India, design and CAD works
- ANSOL, transmission analysis

"... Dear Mr. Dinner, tank you very much for ... assistance on our ongoing jacking gear project... your assistance was invaluable in helping my department get everything done in a very timely manner ... looking forward to working with you ..."

Mr. Mehul Parekh, General Manager, JVS Engineers, India