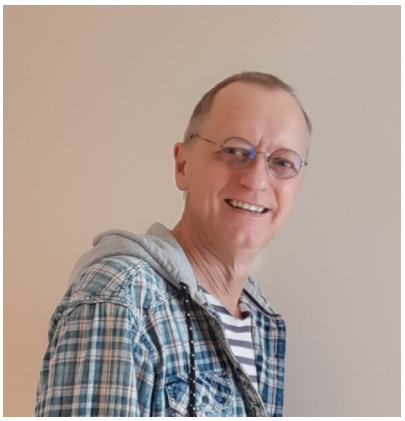
Dipl.-Ing. Harald H. Nieswandt | Kammweg 9 | 01904 Weifa
Tel.: +86 1853 1245 884 | Mail@HaraldNieswandt.de | www.HaraldNieswandt.de
Tel.: +49 177 761 00 83

Harald Helmut Nieswandt



- Development
- Engineering
- Value analysis
- Project management
- Software development
- Technical documents
- Design catalogs

Profile

Professional profile:

- more than 37 years experience in development, design, prototyping, manufacturing and project management.
- expert in gearboxes
- multiple assumption of senior responsibility
- every time with own designs, calculations, software, design catalogs and work instructions

Personal profile:

- very good technical understanding and general knowledge
- creative
- systematic approach
- independet work
- resilient and high operational readiness
- team-oriented
- readiness of mind, short periods of vocational adjustment
- cooperative style in leadership activities

Experience

since 10/2024 **Company:** **Nidec DESCH Antriebstechnik**
Project: **Standardization of planetary gearboxes**
Role: **Calculation expert**

- Comparative calculations for the output torque range 100 kNm to 1 MNm
- Design of planetary bearings with sufficient service life
- Optimization of the gear stages torque-volume ratio
- Minimization of the variety of tools and parts
- Investigation of possible performance increases through technological measures such as vibratory grinding and shot peening
- Development of cost-efficient and robust manufacturing concepts

since 01/2024 **Company:** **WaveLight GmbH, a company of the Alcon-Groupe**
Project: **Creating of the manuals of UNITY GPS**
Role: **Technical Writer**

- Creation of the operating instructions for the UNITY GPS, an optical device for guiding operations in eye surgery
- Gathering the necessary information and data
- Simulation of the operation on the prototype

Note: I will probably be working on two projects until the end of January.

06/2023 - 12/2023 **Company:** **Rotax GmbH & Co KG in Austria**
Project: **Development and validation of a dual clutch transmission, improvement of the transmission**
Role: **Technical Project Manager**

- Leading the validation of gearboxes
- Definition of requirements and limits
- Planning, coordination and implementation of tests on components and complete drive trains
- Development of suggestions for improving the design and their implementation
- Collaboration with the calibration and software development departments

07/2019 - 04/2023 **Company:** **Hycet Transmission Technology Hebei Co., Ltd, China, a company of Great Wall Motors Group**
Role: **Expert for gear wheel calculation and software development**

- Calculation and design of
  - planetary gear sets for a new 9AT / 9HAT gearbox
  - gear sets for a new 9DCT / 9HDCT
  - step planetary gear sets for a gearbox for e-axles with integrated differential
  - bevel gear sets for a differential gearboxes
- Calculation of load spectra for different gearboxes
- Training of the devellopment team in design, calculation and development of toothings
- Creation of a toothing guideline for the development department
- Development of software for
  - dimensioning of gear sets according to loads, center distances or other geometrical parameters
  - calculation of gear sets
  - optimisation of gear sets

02/2019 - 06/2019 **Company:** **Valeo Siemens GmbH**
Project: **Development of calculation methods and requirements for the design and calculation of toothings of planetary gearboxes**
Role: **Development engineer**

- Calculation analyses of a gearboxes for e-axles
- implementation of tests internal and external for improvement of efficiency
- Training of the development team in design, calculation and development of toothings

01/2017 - 12/2018 **Company:** **Schaeffler AG**
Project: **Development of calculation methods and specifications for gear design of planetary gears**
Role: **Development engineer**

- Creation of complex calculation analysis and implementation of competitor analysis in the project „planetary gear wheel sets and differentials“ for the series introduction of gearing components for planetary gearboxes and differentials
- Creation of a concept for calculating the toothing with FVA-software, KissSoft and BearinX
- Creation of an optimisation plan of toothing components regarding function, production and costs
- Creation of an analysis of the current state for part sourcing, sampling and testing
- Realisation of competitive and benchmark analysis
- Creation of a detailed technical documentation

03/2016 - 01/2017 **Company:** **NGC Europe GmbH**
Project: **Development of a 6 MW main gearbox for offshore wind turbines**
Role: **Development engineer**

Project management, design and calculation for a new concept of gearboxes

- design with NX10 as 3D-model
- calculation of toothings with KissSoft
- clarification of customer requirements
- searching of suppliers in China
- assignment of external providers for subprojects

Technical responsibility for a customer project

- design
- collaboration for the FMEA
- clarification of deviations
- realisation and mentoring of toothing calculations
- mentoring of FE analysis
- clarification of suppliers requests
- concept design reviews in China
- customer care
- several business trips to Nanjing/China

05/2015 - 11/2015 Company: With CREADIS for a confidentional Customer
Project: Concepts of several drive train interfaces
Role: Expert / design engineer

Concepts for the interfaces between main bearing, main shaft and gearbox

- creation of the list of requirements (system specification)
- identification of functions and function structures
- searching of all possibile solutions
- classification in feasible moduls
- first drafts for calculations
- calculations with different tools
- assesment to find the best solutions
- detailing
- design-FMEA

03/2012 - 09/2015 Company: Zeiss SMT GmbH
Project: Vacuum main chamber for the semiconductor industry
Role: Project leader, Expert

Project management and responsibility of the object for the development, design and manufacturing of

- vacuum main chamber
- vibration isolators
- inner frame for adaption of the optical equipment
- plate type heat exchangers
- energy and media supply
- chamber feet
- earthquake savety

Creation of project schedules regarding

- time
- resources
- mile stones

Selection and mentoring of external suppliers for manufacturing and purchasing of the components;
Controling of time schedules, mile stones and cost targets;
in case of deviations creation of actions to recovering time and/or cost targets plus secure the deletion of errors with the tool 8-D-report;
Creation of specifications for all components in my responsibilitie;
Instruction and support of designer in developing and designing;

Cooperation as expert in

- specification of vacuum main chamber, isolators and plate type heat exchangers
- creation of system specification for suppliers
- development of suppliers
- support of suppliers
- selection of synthetic materials for sealing, isolation and media pipes regarding ability for vacuum, cleanliness, machining and long time stability
- creation of processes of cleaning for new developed synthetic material parts
- tolerance calculation for exact positioning of optical equipment in the vacuum main chamber
- creation of work instructions for the assembly, starting of operation and calibration
- creation of calibration instructions
- starting of operation
- calibration of different sensors

07/2010 - 01/2012 Company: Brevini Wind Deutschland GmbH
Project: Main gearboxes for the wind turbines WWD-3 und WWD-1
Role: Projec leader, development engineer

Project management in the devopement of two main gearboxes (3,5 and 1,15 megawatt) for wind turbines

- coordination of technical issues with the customers
- creation and ministration of system specification
- revision of development for the 3,5 MW gearbox
- leadership of complete development for the 1,15 MW gearbox
- cooperation for the FMEA of both gearboxes
- development of the oil supply with Unigraphics 7 together with the customer for the 3,5 MW gearbox
- development of a sealing concept with synthetic materials for a lifetime of 20 years without replacement
- validation of the gearbox parts for certification
- certification of the 1,5 MW gearbox by Det Norsk Veritas (DNV)
- certification of the 3,5 MW gearbox by Germanischen Lloyd (GL)
- creation of manuals
- design of planetary carrier with Unigraphics 7
- cooperation in planning and realisation of test runs
- support of manufacturing in assembly of prototypes
- development of new bearing concepts for planetary bearings
- creation of instructions for the superfinishing process of toothings
- tolerance calculation to make the assembly sure
- analysis of the interfaces ring gear and housing plus ring gear and torque arm
- development of electrical isolation between gearbox and generator with plastic parts and ceramic materials

01/2010 - 06/2010 Company: Adam Opel GmbH Rüsselsheim
Project: Technical Resident Consultant
Role: Expert

Tasks and responsibility:

- technical responsibility for shafts, bearings and toothings of gearboxes
- participation in the completion of a new 6-speed gearbox for smaller cars in gearbox development
- studies of the strength and hardness profile in gearbox shafts in case hardened gearbox shafts in cooperation with the material laboratories in Germany and USA as well as the department FEM
- tolerance analysis of gearbox parts in the housing using ProE
- validation of the gearbox parts for the 6-speed-gearbox to match the design guidelines (“Architecture Summary”) of the gearbox
  - component geometry
  - tolerance calculations for the gearbox parts in the housing
  - fatigue strength and static strength of the shafts
  - acceptance of the integer divisible teeth numbers (hunting ratios)
  - manufacturing specifications
- summary and presentation of the results (DRD) for approval from the management
- calculation and design of the gearbox shafts in cooperation with design and FEM department
- creation of general design guidelines (BoD = Bill of Design) for
  - design and calculation of gearbox shafts
  - calculation of retaining rings

06/2008 - 12/2009 Company: LWN Lufttechnik GmbH
Role: Technical director

Head of R&D of industrial fans in power sector from 7,5 up to 315 kW

- own designs of fans with Inventor 2007 - Inventor 2009
- later additionally taken over the management of the fan production

Successes:

- integration of several fan series from a company aquisition into development and production
- substantial cost reductions through design improvements of the fans
- planning, design and realisation of a suction-side chamber test bensch for further development and customer acceptance of the produced fans
- reduction of manufacturing time by renewing personnel structure in the production, qualification of the employees and renewal of the manufacturing processes

09/2005 - 06/2008 Company: GKN Walterscheid GmbH
Role: Head of design and development

Responsible for the development and construction of drive solutions for agricultural machinery. Participation in the design of business processes, supplier selection and customer service; associated with frequent business trips to Ireland, Belgium and Denmark, supplier selection and support in India.

Successes:

- development of a very new main gearbox for a combine harvester, which, as an overriding drive, allows a stepless regulation of the threshing drum independent of the engine speed, which means a significant improvement of the harvesting results
- reduction of production costs for existing transmissions of up to 26.4%
- outsourcing of high-quality gear parts to India - with a cost reduction of 55%

04/2002 - 08/2005 Company: Nordex Energy GmbH
Role: Deputy head of department, gearbox expert

Responsible of the development of the whole drive train plus all drive-related devices from concept to development and testing handover the series

Successes:

- design and development of two completely new gearboxes for the megawatt class of wind turbines
  - approval by Germanischer Lloyd
  - testing and series introduction
  - increased safety through significant better load distribution
  - reduction of size and weight
- development of calculation basics and creation of new methods and software together with an interdisciplinary team for better analysis of operation loads including of the inspection of damaged wind turbines in Norway, Denmark and Germany
- reduction of damages of gearboxes through newly developed guidlines for gearbox specifications with the knowledge gained from the new calculation basics

10/2000 - 03/2002 Company: Antriebstechnik GEFEG GmbH & Co. KG
Role: Technical director

Responsible of the design and development, construction of bearbox production

Successes:

- development and structuring of the department of design and development, department of prototyping and of the production for gearbox manufacturing
- development, design prototype testing and series introduction of
  - three planetary gearbox series, noise optimized with newly developed plastic gears
  - a specifically quiet worm gearbox motor for the door drive of passenger elevators with a new developed worm gaer wheel as injection molded plastic part

01/1997 - 09/2000 Company: Getriebebau NORD GmbH & Co. KG
Role: Leader of gearbox design

Responsible of design of nonstandard and serie gearboxes, order processing, software development, standardisation and creation of catalogs plus reprensentation of the company in the working group „gear noise“ of the FVA (Research Association of Power Transmission Engineering)

Successes:

- significant increase in motivation with noticeably improved results in the gearbox design
- favourable introduction of the CAD software including 3D development
- completion of development, design, testing and series introduction of the commercially successful series „Nordbloc“
- Development of a software for the selection of gearboxes with and without e-motor including the automatic drawing creation as a DXF file
- introduction of new design guidelines for low noise spur gears, significantly simplification of the assembly of the gearboxes

02/1996 - 09/1996 Company: idem GmbH
Role: Software developer, CAD expert

Development of additional CAD software for management of drawings

01/1989 - 12/1995 Company: Zahnradfabrik Altona-Elbe GmbH & Co. KG
Role: Design engineer, Leader of R&D

Tasks, responsibilities:

- modification and special designing of the exists gearbox series
- construction of the test field with automatted test rigs for gearbox testing
- basic experiments with worm gearboxes
- development and design of new gearbox series
- development of calculation software

Successes:

- development, design and testing plus series introduction of gearbox units with a spur gear stage and a worm gear stage, with and without e-motors
- concept and development of the Eta-Drive series (gearboxes with excellent efficiency factor)
- planning and construction of a computer controlled transmission test bench
- appointment to head of R&D
- Development of a software for the selection of gearboxes with and without e-motor including the automatic drawing creation as a DXF file

07/1986 - 12/1988 Company: Körber AG, Bereich Blohm-Schleifmaschinen
Role: design engineer

- participation in the design of equipment for the grinding machines
- design and detailing of a tool for turbine blades
- calculation of the geometric contact points for the positioning pins
- design of plastic cable guides chains for NC dividers and double grinding heads of turbine blade grinding machines
- design of machine frames of special grinding machines
- tolerance calculations of components regarding assembly

07/1980 - 06/1984 Company: Bühler-Miag Braunschweig
Role: Craftsman

Production of machine components of different sizes and complexity with

- NC lathes
- grinding machines
- conventional lathes
- vertical lathes
- milling machines

Education

09/1987 - 05/1992 Educational objective: Dipl.-Ing. Maschinenbau (mechanical engineer)
University: Hochschule für angewandte Wissenschaften Hamburg

Extra-occupational evening study with majoring in "General Mechanical Engineering"

Degree: Diplom-Ingenieur

Diploma thesis with the topic "Examinations and proposals for systematic design in gearbox dimensioning and gearbox design" for company Zahnradfabrik Altona-Elbe.

- benefits of using design catalogs and systematic engineering
- software for the automatic generation of special constructions

Award of the diploma thesis with a voucher of DM 10.000, - for the procurement of a computer.
The gear selection program is being developed further and used by customers and the design department to find the right drive and create the installation drawings.

08/1984 - 06/1986 Educational objective: Staatlich geprüfter Techniker (state certified technician)
School: Technikerschule der Stadt Braunschweig

Degrees:

- state-certified technician, specializing in mechanical engineering,
  education focus on mechanical design
- qualification for university entrance by taking part in an additional training offer

08/1976 - 06/1979 Educational objective: Lathe operator / craftsman
Company: Bühler-Miag in Braunschweig

Education to lathe operator

Degree: craftsman

Knowledge of languages

German	First language
English	fluent
Chinese	very beginner

Skills

CAD

Inventor:	a lot of experience
NX10:	much experience
ProE:	experience
Medusa:	a lot of experience

Microsoft Office

Access:	experience
Excel:	a lot of experience
Word:	a lot of experience
PowerPoint:	a lot of experience
Project:	much experience
Visio:	much experience
Outlook:	much experience

LibreOffice / OpenOffice

Calc:	a lot of experience
Writer:	a lot of experience
Impress:	a lot of experience
Draw:	a lot of experience

Graphic and design

Corel Technical Designer:	a lot of experience
Corel Draw:	a lot of experience

Website design and creation

Corel Website Creator:	a lot of experience

Coding

Turbo Pascal:	a lot of experience
Delphi:	a lot of experience
Lazarus/FreePascal:	a lot of experience
Visual Basic:	experience
Java:	knowledge
Fortran:	much experience

Calculation software

ST-Plus:	a lot of experience ST-Plus is a FVA software to calculating spur gears according DIN 3990 / ISO 6336, AGMA and many other calculations methods.
KissSoft:	a lot of experience
DZP:	much experience A FVA software to calculate transmission error, natural frequencies and dynamic additional forces in straight and helical spur gear units
RIKOR:	much experience A FVA software to calculate shaft deformation, bearing reduction, tooth flank corrections, load distribution in tooth contact, damage-relevant stresses and contact pattern for straight, helical and double helical spur gears
MASTA:	knowledge Calculation of complete gearbox models to determine the toothing safety, deformations, dynamic behavior such as turning error and dynamic additional forces.

Other

SAP:	experience
GanttProject:	much experience