



BEARING APPLICATION WORLD 2021

Press release

September 2021

Interview with Prof. Dr. Robert Grebner, President of FHWS

The rolling bearing industry is in the middle of a transformation process driven by new technologies such as digitalization, e-mobility and the energy transition. We met with the president of FHWS, Prof. Dr. Grebner, to talk to him about the current situation at his university.

Dear Prof. Grebner, you are the President of the University of Applied Sciences Würzburg-Schweinfurt, or FHWS for short. How is the FHWS rooted in the region and how is it positioned nationally and internationally?

Grebner: FHWS is one of the four largest universities in Bavaria and is celebrating its 50th anniversary this year. More than 9,000 students in more than 40 bachelor's and master's degree programmes are now being taught by around 230 professors. The FHWS is particularly proud of the pronounced practical relevance in teaching, research and continuing education. The numerous cooperations with industrial partners offer excellent internship and job opportunities for graduates.

With a large proportion of international students, the FHWS demonstrates its strength in internationalism. In particular, domestic students and companies should be challenged and encouraged through contact and cooperation with students from abroad. To this end, the FHWS is unique in Germany in offering four so-called TWIN bachelor's degree programs in Schweinfurt (mechatronics, robotics, logistics, business engineering) and one in Würzburg (international management): Classes in these degree programmes are offered in both German and English. Students can switch between the two programmes and thus develop their linguistic and intercultural skills, which makes them particularly interesting for internationally operating companies, such as those we also find in the form of SMEs in the region.

The FHWS is constantly expanding its range of courses: in October 2020, Germany's first undergraduate bachelor's degree course in robotics launched in Schweinfurt - also in German and in English. In October 2021, we added Germany's first bachelor's degree programme in hydrogen technology. A new, English-only master's programme in Artificial Intelligence will start in the summer semester of 2022.

As an important industrial location with a long tradition, Schweinfurt is home to numerous technical degree programmes with strong links to the rolling bearing industry based there. Companies such as FAG - today Schaeffler, SKF and Sachs were founding members of our university.

In the bachelor's degree programme in mechanical engineering, students can take courses in rolling bearing applications. In addition, the Faculty of Mechanical Engineering offers a master's degree programme in „Product and System Development“, in which the elective subject „Rolling Bearing Technology“ can be studied in depth.



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What are FHWS's goals in participating in BAW?

Grebner: Bearing Application World is an excellent opportunity to present FHWS internationally. We want to show companies who we are and what competencies we have in the field of bearing technology but also production technology and what our graduates are capable of. In recent years, the FHWS has created several technical TWIN degree programmes that can be studied in both German and English. With this offering, FHWS is now able to attract many international students. Thus, about 1800 international students are currently enrolled at the FHWS. And of course, the FHWS is located in the Bearing Valley Schweinfurt and maintains a friendly relationship with the local rolling bearing industry. In this respect, we welcome the commitment of the Steinbeis Transferzentrum Wälzlagerertechnik, which is located as a spin off at the FHWS and is headed by Prof. Dr. Sommer and Mr. Helfrich.

How does the FHWS relate to the rolling bearing industry?

Grebner: The FHWS has traditionally had a strong relationship with the rolling bearing industry. For example, there have always been large players as well as SMEs located in and around Schweinfurt that cooperated with the university, such as FAG today Schaeffler, SKF, Sachs today ZF, and very many SMEs in this field in and around Schweinfurt - hence the name Bearing Valley. The symbiosis of the FHWS with the bearing industry creates jobs for the graduates on the one hand and attracts scientific personnel from the bearing industry on the other.

Can you give us examples of collaborations at FHWS?

Grebner: In Bearing Valley in and around Schweinfurt, there are very many small and medium-sized enterprises (SMEs) involved in the industry in addition to the internationally known market leaders SKF and Schaeffler. The FHWS cooperates in various research projects with both the large and the small companies. This involves many exciting future technologies such as simulation and digital twin, additive manufacturing 3D printing, robotics, big data and artificial intelligence, energy generation and distribution, e-mobility or even renewable energy generation (wind, sun, water).

There is a huge need for innovation and development here - especially in the rolling bearing industry, because the rolling bearing industry is in the middle of a transformation process. On one hand, traditional applications are disappearing, for example bearings for car transmissions, while on the other hand new applications are emerging, such as large bearings for wind power.

You just mentioned the transformation process. How specifically do you notice this at the university and in your partner companies from the rolling bearing industry?

Grebner: In the past, rolling bearing technology was dominated by traditional mechanical engineering. However, the new requirements from e-mobility and the energy transition are forcing the industry to reorient itself. Traditional markets, such as transmission bearings for passenger cars, are increasingly disappearing and with them, of course, the production volume and the associated sales. Instead, the rolling bearing industry is facing new challenges such as the increasing electrification of the powertrain, not only for passenger cars, but also in robotics for industrial applications and, of course, for wind power.



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We are increasingly noticing this through project inquiries from industry. In addition, more and more bachelor's and master's theses are being written on topics related to future technologies. Another important indicator is the FHWS Business Advisory Board. Our university is one of the few universities that has established an economic advisory board. It is staffed with high-ranking business representatives who meet regularly and bring the requirements of industry to the university first-hand.

How does FHWS support the technical transformation process of industry?

Grebner: Our existing technical degree programmes, mechanical engineering, electrical engineering and business engineering, were developed in close consultation with industry. The same applies to the new technical degree programmes in mechatronics, technomathematics, robotics and hydrogen technology. We are constantly exchanging information with our industry partners. Research institutes and technology transfer centers have also been established at our university. As examples of the technical part of the transformation process, I would like to mention the Institute for Digital Engineering (IDEE), the Institute for Energy and High Voltage Technology (IEHT) and the Transfer Center for Electromobility (TTZ EMO). In this way, we ensure that we also train and conduct research on current topics that are important in the long term. Through this package of measures, we can master the scientific basis for the challenges of the future.

What specific activities or projects do you have or are you planning with the rolling bearing industry?

Grebner: As already mentioned, the FHWS has maintained a close alliance with the rolling bearing industry for decades. Countless projects have been and are being worked on. A large number of our graduates work in the industry.

We have concrete projects in the area of digitalization. For example, the digital twin for rolling bearing systems, but also projects in the field of robotics and additive manufacturing (3D printing). Another project is dedicated to the new challenges for rolling bearings in electric drive trains, as rolling bearings in e-cars or in wind turbines have to endure much higher loads. There will also be special presentations on this by our professors during the BAW.

What is the future direction of the FHWS?

Grebner: In 2020, the FHWS inaugurated and put into operation the new building for the Faculty of Business and Engineering. Another new building is planned for research on robotics in order to also develop Schweinfurt into a Silicon Valley of robotics. In Schweinfurt, we are currently looking to develop digital engineering, and in Würzburg, artificial intelligence. To this end, the Free State of Bavaria is providing the university with 40 new positions through its Hightech Agenda.

As a contribution to the energy transition and in particular the hydrogen strategies of the EU, Germany and Bavaria, the FHWS has established a new strategic focus Zero Carbon, in which it is also



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installing 20 new professorships from the Hightech Agenda and wants to set an example with the first bachelor's degree programme in hydrogen technology in Germany.

We currently have more than 20 new research projects as well as projects for further education in a wide range of future-oriented areas, from which SMEs from the region in particular are benefiting. We want to expand this further in the future.

*In case of queries:
info@bearing-application.com*



left: Prof. Dr. Robert Grebner – President of FHWS, right: Dipl.-Ing. (FH) Dominik Helfrich