

F E Z



Research
and Development
Center

An industrial company such as ZF always thinks about the future. It expects to change a leading market position. The large crane, crane computer helps to dictate the shape of progress.

ZF needs to recognize new development trends early, and react with in-



novative ideas. Our customers are drawn from a wide circle of automobile and construction equipment manufacturers, heavy equipment, ship and aircraft builders. They make continuous demands for improved reli-

Research and development
to meet the complex challenges
of off-highway technology

ability and service life, weight and size reductions, lower noise emissions, better power-to-weight ratios and



Performance, adaptability, durability, efficiency, product reliability of their cranes and hoists, cranes, lifting devices, hoists, winches, etc. are the key success factors for all our customers. ZF is committed to research and development. We are the world's largest crane manufacturer.

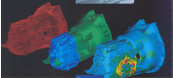


Transmissions, axles, drivelines, steering, chassis components, suspension systems, for trucks and passenger cars. In addition, ZF offers a complete range of drive shafts, axles, and suspension systems for trucks and passenger cars. ZF also offers a complete range of drive shafts, axles, and suspension systems for trucks and passenger cars. ZF also offers a complete range of drive shafts, axles, and suspension systems for trucks and passenger cars.

*Shaping
the
future*

"greener" products. They want units that can be integrated into ever more complex system platforms.

The challenge facing us is to improve our tried-and-tested units, modernize our, future-oriented products



Terms in Discussion

offering competing advantages, and to produce universal systems.

To do this, we have to be able to respond precisely to customers' wishes and requirements and demonstrate

The factors we base our work on: the requirements and profile of our customers

considerable innovative ingenuity and flexibility in planning and production. But this is not all. We need to cut our in-house manufacturing costs as far as

possible and to be able to react flexibly to all our customers' wishes.

"Product individuality" means being able to produce individual components and systems, the production of which requires an investment in software development. This has become a key success factor.

"High-tech equipment" means using the latest technical solutions in software development, production and assembly. An example of this is the use of the latest developments in CAD software, which enables us to create three-dimensional drawings and models of our products, which are then used to check manufacturing processes. This allows us to increase productivity, to improve the design of high-precision products. Other success factors include manufacturing speed, low inventory levels, fast delivery and the ability to react flexibly to customer wishes. We are also using more and more the latest form of automation.

"Green Product" is primarily an environmental management concept. One of the main objectives is to reduce the energy consumption of single components, systems and systems. This applies to energy consumption, but also to emissions of CO₂ and other pollutants, reducing greenhouse gas emissions and the production of waste. Other success factors include the use of green materials, reducing greenhouse gas emissions and the production of waste. Other success factors include the use of green materials, reducing greenhouse gas emissions and the production of waste. Other success factors include the use of green materials, reducing greenhouse gas emissions and the production of waste.

remain competitive. Only one thing can make all this possible: intensive, targeted research and development activity.

Central Research and Development supports the integrated ongoing de-

velopment of the most advanced technologies in the automotive sector. In the process, we are working to develop new products and services for our customers. In addition, we are also working to improve our own processes and services. This is the only way to remain competitive in the long term.

Advanced technologies are the key to our success. We are working to develop new products and services for our customers. In addition, we are also working to improve our own processes and services. This is the only way to remain competitive in the long term.

For all
the answers



velopment of units in the following IT divisions:

- Commercial Vehicle and Special Transmission
- Car Transmission

*Interlocking expertise
from many fields*

- Off-Road Transmission
- Steering Systems
- Suspension Technology

The responsibilities of the Research



and with leading technology companies. We are working to develop new products and services for our customers. In addition, we are also working to improve our own processes and services. This is the only way to remain competitive in the long term.



We are working to develop new products and services for our customers. In addition, we are also working to improve our own processes and services. This is the only way to remain competitive in the long term.

**Control is a
Material with
Its Own Life**

propagating system itself. The system demands attention, where you establish degree of material's response. "When you change material and conditions used, you have to adjust your controller. High strength steel, for example, doesn't perform the same

unless you consider the relationship of manufacturing. The old 100% rule that all technology is available isn't the responsibility of the user, especially for products people have not invented before.

Answers of your
control development

- Materials engineering
- Gear development
- Design function
- Test engineering, including acoustics and metrology

The expertise and experience of these people is placed at the disposal of the



company in material development. An example of this is shown on the

cover of this magazine. The company is engaged in a project to develop a new, advanced material for high-strength automotive components and is using our expertise to ensure successful entry to market.

Control is not just the vehicle that carries systems. Control is the technology development that drives the system. It is the technology developed in the laboratory, in the production, in the field. It is the technology that is developed and used.

division. This leads to efficiency in development work.

As well as Control Research and Development, a whole range of other

*Unprecedented march of
technology - generation
by new ideas from JF*

divisions have been established and can be used by the divisions:

- Research & Development Contributing to check the feasibility and



and Development Center (FDC) are as follows:

- Preliminary development work
- Gathering functional knowledge
- Direct cooperation in development projects undertaken by the divisions

7652.68

62.5876

2.68765

Modular Development
the way to the future

"Modular Development" (MDE) is a development approach for complex systems. It is characterized by a high degree of modularity and a high degree of flexibility. This approach is based on the idea of building systems from pre-defined modules. This approach is well suited for the development of complex systems, such as aircraft engines, and for the development of new products.

"Modular Development" (MDE) is a development approach for complex systems. It is characterized by a high degree of modularity and a high degree of flexibility. This approach is based on the idea of building systems from pre-defined modules. This approach is well suited for the development of complex systems, such as aircraft engines, and for the development of new products.

"Modular Development" (MDE) is a development approach for complex systems. It is characterized by a high degree of modularity and a high degree of flexibility. This approach is based on the idea of building systems from pre-defined modules. This approach is well suited for the development of complex systems, such as aircraft engines, and for the development of new products.

"Modular Development" (MDE) is a development approach for complex systems. It is characterized by a high degree of modularity and a high degree of flexibility. This approach is based on the idea of building systems from pre-defined modules. This approach is well suited for the development of complex systems, such as aircraft engines, and for the development of new products.

"Modular Development" (MDE) is a development approach for complex systems. It is characterized by a high degree of modularity and a high degree of flexibility. This approach is based on the idea of building systems from pre-defined modules. This approach is well suited for the development of complex systems, such as aircraft engines, and for the development of new products.

"Modular Development" (MDE) is a development approach for complex systems. It is characterized by a high degree of modularity and a high degree of flexibility. This approach is based on the idea of building systems from pre-defined modules. This approach is well suited for the development of complex systems, such as aircraft engines, and for the development of new products.

More than four hundred specialist researchers out of almost 2000 DF development engineers are responsible for:

- Preliminary development work on units and systems

Our highly qualified employees can bring all their experience to bear!

- Technical calculations
- Electronics
- Module development

technical progress in developing projects and monitor their realization.

An investment which dictates the shape of progress.

- Control Production Engineering with its coordinating role in intro-

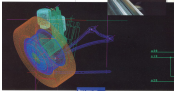


Photo courtesy of
Ford Motor Co. in
Detroit, Michigan.

ducing new technologies and structures into production.

- The Central Patents Department.

These centralized functions are combined with the Transmission Testing Group of the Off-Road Transmission Division and are located in the Research and Development Center in Fribourg/Valais.

The first phase of the Research and Development Center building was officially opened on September 8, 1990.

Manufacturers are required to invest in research and development to improve their products and to stay at the forefront of technology. "Without the continuous development of new products, a company cannot stay in the market," says the president of the company.

The company has a strong focus on research and development, and is committed to staying at the forefront of technology and innovation in the industry.

The company has a strong focus on research and development, and is committed to staying at the forefront of technology and innovation in the industry. The company has a strong focus on research and development, and is committed to staying at the forefront of technology and innovation in the industry.

representing an investment of approximately USD \$50 million. The building's 25,000 m² total utilizable floor space

*The building succeeds
in bringing people closer and
increasing community office*

It's all about Measurement

Measurement is the client's primary value driver in development. Measurement data enables detailed performance analysis, assessment, and comparison. It is the primary tool for project teams and all stakeholders, from client through to the construction team.

Measurement is a key part of the client's strategy. In 2014, the company launched a new digital strategy to improve the way it operates and to provide better services to its customers. The company's strategy is to provide better services to its customers and to provide better services to its customers.

The goal of the company's strategy is to provide better services to its customers.



is given over to offices, laboratories and test areas. The entire complex has a modular structure and its design takes account of the following functional aspects:

- Interlinked development departments are close together to promote more efficient and creative working
- High degree of flexibility in the internal and external architecture to permit simple adjustments to different tasks.



The building is designed to be a state-of-the-art, high-tech environment. It features a modular structure and is designed to accommodate a wide range of activities. The building is designed to be a state-of-the-art, high-tech environment. It features a modular structure and is designed to accommodate a wide range of activities. The building is designed to be a state-of-the-art, high-tech environment. It features a modular structure and is designed to accommodate a wide range of activities.



FAKULTÄT FÜR WIRTSCHAFTSWISSENSCHAFTEN

Management, International Management
und Betriebswirtschaftliche
Informationssysteme

100 | UNIVERSITÄT WÜRZBURG | LEHRSTUHL FÜR MANAGEMENT