



ZF Test Systems now focusing on Wind Energy

- **Growing wind energy markets: 4 Megawatt wind power transmission test rig for ZF Services**
- **Increasing demand for wind power transmission test rigs in China, USA and Europe**

ZF Test Systems, the independent system supplier for test systems emphasizing on automotive, is now offering test rigs for wind power transmissions as turnkey whole facilities with CE-marking. A current customer is ZF Services, a business unit which merges all customer service activities of the ZF Group and the aftermarket business with the product brands Sachs, Lemförder, Boge and ZF Parts.

This business unit will be supplied a 4 MW wind power transmission test rig to its Service Competence Center in Dortmund. The test rig serves for run-in tests under load application and for functional tests of transmissions after repair. As an independent repairer, ZF Services is expecting a two-digit million Euro rise of the global turnover by 2015.

In the production of wind power plants and facility parts, Germany has been a technological leader on the global market for renewable energies since 2001.

ZF Test Systems became aware of this development's significance and has incorporated wind power transmission test rigs in its field of research. It has gained decades of experience and know-how with the production of development and series test rigs for vehicle and industrial transmissions in the high power range, which was an ideal basis for getting quickly and successfully established in the wind power market.



Wind energy plants are usually equipped with wind power transmissions, whose tasks it is to adapt the low rotor speeds to the high generator speeds. The construction and operation start-up of these plants necessitated the realization of wind power transmission test rigs required for development and series production testing, and for servicing these transmissions.

In the past, the wind power transmission test rigs were built in single crafts by various suppliers.

Today, ZF Test Systems is offering the advantage of supplying the test rig as a turnkey whole facility, obviating any safety risk and customer's need for expensive interfaces.

In the field of wind power transmission test rigs a distinction is made between development and series test rigs. They have got different testing methods.

Development test rigs:

- Endurance strength
- Overload behavior
- Efficiency
- Service life and wear
- Temperature behavior
- Structure-borne noise
- Air-borne noise

Series / service testing

- Function
- Run-in test under load application
- Noise
- Cleaning of oil circuit

In accordance with the high quality standards in the automotive sector, acoustic measurements with extensive evaluations and



order analyses are made, for example. Consistent documentation and traceability of the test sequence and the measured results is indispensable in this connection.

The ZF wind power transmission test rig has been designed as an electric torque test rig. Two test units in back-to-back arrangement are driven and loaded by electric motors in this test rig.

Exchange of energy between motor and generator is ensured by connecting the motors via voltage intermediate circuit of the converter. Just a low supply power is therefore necessary for facility operation even at high loads. Only power for losses and dynamic procedures must be performed by the supply unit.

This design ensures a maximum of flexibility for testing most various wind power transmissions. Realization times are comparable to those of other test rigs. The key differences in production are the enormous component dimensions, weight and the required production tolerances.

Since power capacities go up to a 2-digit MW-range, the complete drive system within this power range is designed in medium-voltage technology. Precondition for this, among others, is an especially qualified staff and complex insulation measures.

Investment cost depends on equipment and functionality of the test rig. An approximate value of Euro 1 Mio per MW test power, however, is to be expected. Wind power transmission test rigs are most needed by manufacturers of wind power plants and transmission suppliers. These facilities, however, also attract wide interest from service providers like research and test institutes and service organizations.

ZF wind power service centers are now being built in Great Britain, Spain, Italy and North America. In addition, ZF Services also plans to get established as a service provider on the continuously growing wind power markets China and India.



Also ZF Test Systems is active on these growing markets. Another wind power transmission test rig is currently being produced for a European transmission manufacturer.

For 2010, orders from international customers are already in the acquisition process, so that a strong wind of change will be blowing in 2011 demonstrating ZF's overall competence.

Picture caption::

2.) Input unit for 4 MW wind power transmission test rig

Picture: ZF



Presseinformation
Press Information

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ZF is a leading worldwide automotive supplier for Driveline and Chassis Technology with 123 production companies in 27 countries. In 2009, the ZF Group achieved with 60,000 employees a sales figure of approx. EUR 9.4 billion. In order to continue to be successful with innovative products, ZF annually invests at least five percent of its sales (2009: 663 million of EUR) in Research and Development. Approx. 5,300 employees work for Research and Development worldwide, 750 thereof in Corporate Research and Development of the ZF Group.

The ZF Division Off-Road Driveline Technology and Axle Systems specializes in the development and production of transmissions and axles for agricultural and construction machines as well as axle systems for buses and trucks. With about **7,000 employees**, the division generated a turnover of **1.1 billion Euros** in 2009.

Business unit ZF Test Systems of ZF Passau GmbH employs about 90 specialists, who develop state-of-the-art test systems for the most different applications, with a turnover of 36 million Euro generated in 2009. So for the growing wind energy markets, they developed a 4 Megawatt wind power transmission test rig for ZF Services, which will be installed in the Service Competence Center in Dortmund shortly. With its thoroughly designed plants, ZF Test Systems provides mobility and safety, and finds the optimum solution for all test requirements.

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