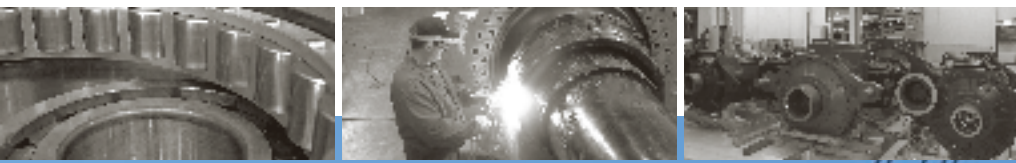




ZF Services for wind energy systems



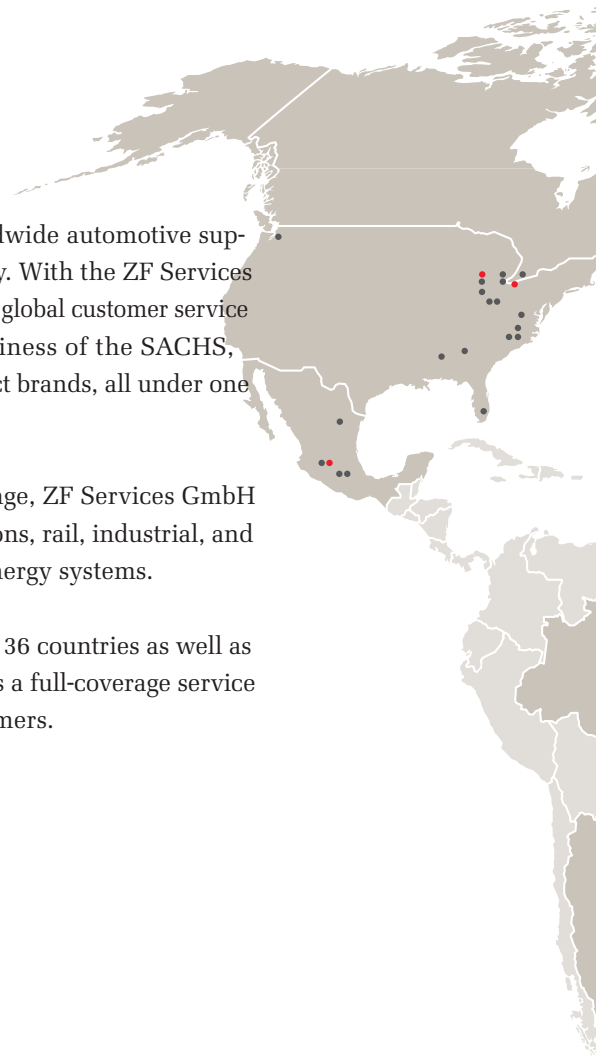


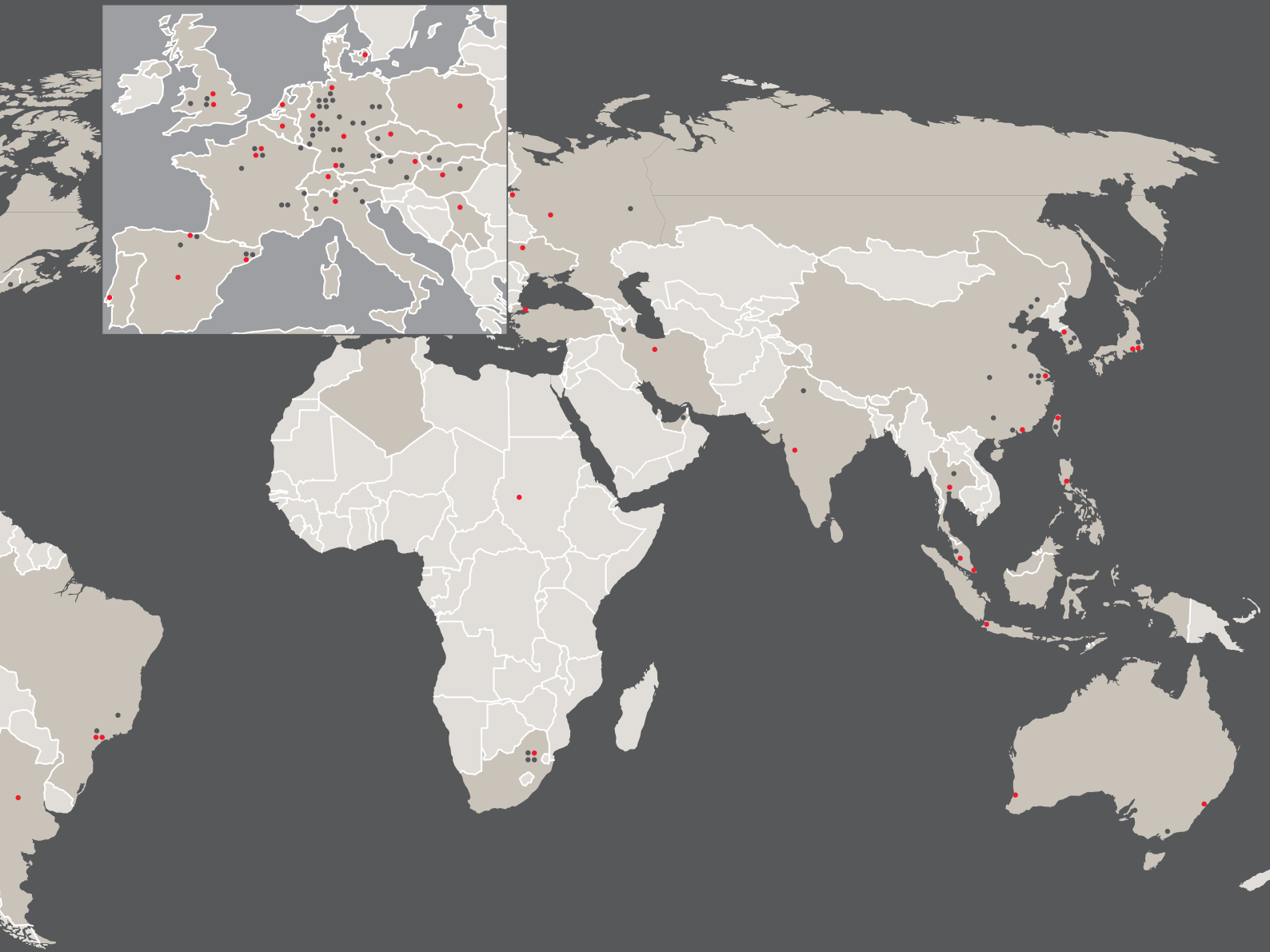
Close to the customer – worldwide

ZF Friedrichshafen AG is a leading worldwide automotive supplier for Driveline and Chassis Technology. With the ZF Services business unit, the Group combines both the global customer service activities as well as the aftermarket business of the SACHS, LEMFÖRDER, BOGE and ZF Parts product brands, all under one roof.

In addition to the automotive product range, ZF Services GmbH also offers solutions for off-road applications, rail, industrial, and maritime applications, as well as wind energy systems.

With more than 76 of its own locations in 36 countries as well as 650 partners, this service organization has a full-coverage service network that is easily accessible to customers.





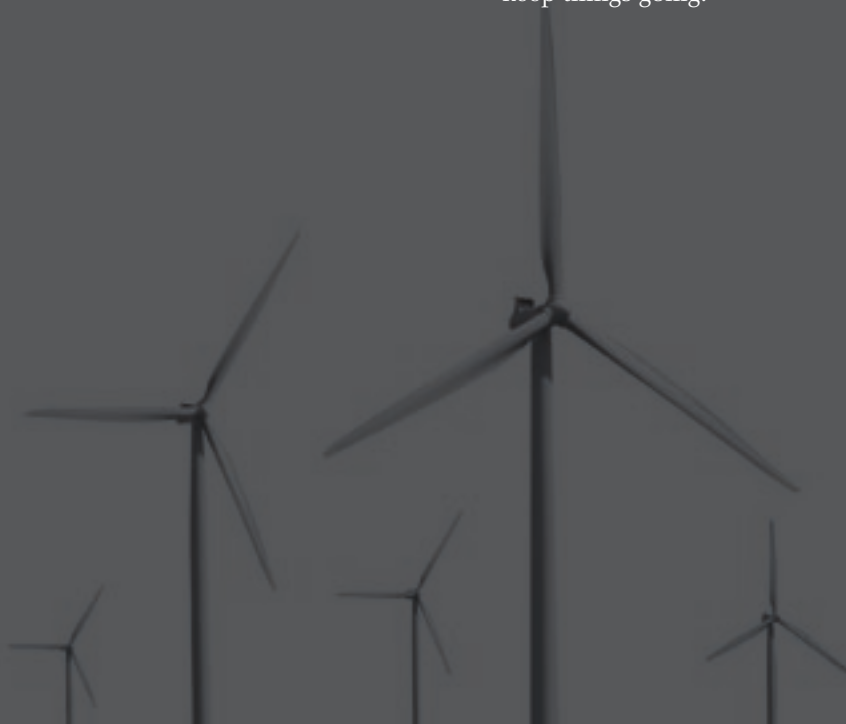


Comprehensive service for optimal efficiency

If a wind energy system transmission sustains damage, the electrical power generation is either at a standstill or maybe available only for severely limited operation. ZF Services transmission specialists have considerable experience and technical know-how in fault diagnosis and repairing transmissions. They also have pronounced quality and cost-consciousness.

Under ideal circumstances, costly downtime can be avoided through measures such as: on-site damage analysis of the wind energy system by use of video endoscopy and instant replacement of individual components. Alternatively, the defective transmission can be checked and repaired in the Service Center, according to OEM standards; if required, technical updates will be performed simultaneously. Our international network guarantees rapid procurement and prompt delivery of spare parts that may be required.

Before reinstalling in the wind energy system, the transmission will be tested under simulated load conditions on our test stand. To keep loss of production to a minimum during repair, ZF Services also has replacement parts that are suitable for different types of transmissions, which it can provide to wind farm operators to keep things going.



A local entity with international impact

The ZF Services Center of Competence for Wind Energy in Germany is conveniently located close to the city of Dortmund. There, ZF Services has a team of highly qualified service technicians who work in a 1,700 m² hall that is equipped with highly advanced engineering facilities.

Approximately 200 transmissions can be repaired in this international Coordination Center per year. In addition to a 32 ton crane, this hall also has a test stand with a capacity of four megawatt. This test bench is used to run transmissions under varying load conditions, for measuring structure-borne sound, and to test the contact pattern under load. ZF Services is the only multi-brand service provider that can offer a test stand of this capacity.





Competence at a glance

ZF Services provides specialized expertise from a single source worldwide for wind energy system transmissions. Make use of our innovative performance portfolio to permanently safeguard the economic operation of your wind energy farm for the future:

- Maintenance and repair of transmissions according to OEM standards
- Repair and testing of mechanical attachment parts of the transmission (brake, oil cooler, clamping plates)
- Rotor shaft repairs
- Repair of YAW/Azimuth gears
- Damage analysis using video endoscopy
- Final inspection in terms of warranty requirements
- On- and offshore service
- Availability of replacement transmissions
- Overhaul and modification to update equipment to the latest technical version
- Training sessions related to the transmission and its features

Your benefits:

- Maintenance and repairs performed by qualified service technicians
- Minimum downtime because of highly efficient replacement and repair methods
- Availability of gear components and roller bearing sets for different types of transmissions
- International service network that ensures rapid and efficient spare parts delivery
- Reproduction of original parts that are no longer available from inventory
- Service-Center on-site





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