see. think. act.

ZF cPOWER
The fully powersplit, continuously variable technology benefits from the long-term experience gained in the agricultural machinery sector and offers significant consumption benefits as well as productivity increases for the vehicle owner.

The cPOWER transmission series deploys well-known and proven construction kit modules and benefits from ZF competence in transmission and vehicle system engineering.

High loads at low speeds in combination with high dynamic are the outstanding requirements for off-highway machinery. These criteria are met optimally by the new ZF CVT transmission technology with a degree of efficiency that was inconceivable up to now.

The business unit “Off-Highway Systems” with its headquarters in Passau, Germany, offers its customers individual, tailor-made integrated solutions for construction machinery, agricultural machinery and material handling applications.
cPOWER – CVT technology

Technical information
- Continuously variable drive over the whole forward and reverse driving range
- Hydrostatic-mechanical power splitting in all driving ranges
- Reduction of diesel motor speed independent of driving speed
- Significant consumption benefits and productivity increases for lift-trucks and container transport-vehicles
- High hydrostatic efficiency through wide-angle-bent-axis units in dual-yoke housing
- 2 PTO available as standard

ZF Drive Systems for Off-Highway Applications

CVT Technology – Stepless into the future

Up to 35% less consumption

Up to 20% higher efficiency
ZF Drive Systems for Off-Highway Applications

Continuously variable drive with high efficiency

- with ZF EFFICIENCY PACKAGE
  - Fuel savings up to 15 %

- with ZF cPower
  - Fuel savings up to 35 %

CVT Technology – Stepless into the future

Not only in wheel loaders does ZF’s cPOWER transmission help reduce fuel consumption and increase productivity. In the diesel-engine-powered lift truck market a trend towards lower engine speeds and the demand for engine stabilization by a constant speed concept are the future challenges.

The continuously variable cPOWER meets both requirements. As for forestry equipment, ZF is already supplying the cPOWER transmission design for the skidder and forwarder applications.

ZF Drive Systems for Off-Highway Applications

Continuously variable drive with high efficiency

- with ZF EFFICIENCY PACKAGE
  - Fuel savings up to 15 %

- with ZF cPower
  - Fuel savings up to 35 %
# ZF Drive Systems for Off-Highway Applications

## cPOWER – CVT technology

<table>
<thead>
<tr>
<th>cPOWER</th>
<th>CP 190/210/230</th>
<th>CP 260/290</th>
<th>CP 310/330</th>
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<tbody>
<tr>
<td>Engine power max. (kW) up to</td>
<td>190</td>
<td>250</td>
<td>284</td>
</tr>
<tr>
<td>Engine torque max. (Nm) up to</td>
<td>1,035</td>
<td>1,430</td>
<td>1,555</td>
</tr>
<tr>
<td>Engine speed (governed) 1/min</td>
<td>1,800</td>
<td>1,800</td>
<td>1,800</td>
</tr>
<tr>
<td>Empty vehicle weight (wheel loader) tons</td>
<td>20</td>
<td>27</td>
<td>35</td>
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Company profile

ZF is a global leader in driveline and chassis technology as well as active and passive safety technology. The company has a global workforce of around 146,000 with approximately 230 locations in some 40 countries. In 2017, ZF achieved sales of approximately €36.4 billion. ZF annually invests more than 6 percent of its sales in research and development – ensuring continued success through the design and engineering of innovative technologies. ZF is one of the largest automotive suppliers worldwide.

ZF allows vehicles to see, think and act.
With its technologies, the company is striving for Vision Zero – a world of mobility without accidents and emissions. With its broad portfolio, ZF is advancing mobility and services in the automobile, truck and industrial technology sectors.
## Divisions and business units

<table>
<thead>
<tr>
<th>Car Powertrain Technology</th>
<th>Commercial Vehicle Technology</th>
<th>Industrial Technology</th>
<th>E-Mobility</th>
<th>ZF Aftermarket</th>
<th>Active &amp; Passive Safety Technology</th>
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<tr>
<td>Manual Transmissions</td>
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<td>CV Steering Systems</td>
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<td>Friction Materials Group</td>
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<td>Wind Power Technology</td>
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</tr>
</tbody>
</table>

### ZF worldwide

- **230** production companies
- **120** service locations
- **40** countries
- **20** main development locations
- **146,000** employees
- **131,200** employees
Industrial Technology is the division where ZF bundles its activities for “Off-Road” applications. It comprises the development and production of transmissions and axles for agricultural- and construction machinery as well as driveline technology for material handling systems, rail- and special vehicles. The division is also responsible for the worldwide business of marine propulsion systems, aviation technology as well as the development and production of gearboxes for wind turbines. Large industrial gearboxes and test systems for various kinds of applications in driveline and chassis technology are also included in the division’s portfolio. The business units of the Industrial Technology Division thus cover a very wide range of products and markets. The division employs a total workforce of approx. 10,128 persons at 25 locations worldwide.
Locations Division Industrial Technology

Europe
Germany: Passau, Friedrichshafen, Kassel, Witten
Italy: Padua, Arco
Belgium: Lommel
The Netherlands: Krimpen
Austria: Steyr
Czech Republic: Stankov

South America
Brazil: Sorocaba

Middle East, Africa
UAE: Dubai

North America
USA: Gainesville, Vernon Hills, Miramar

Asia, Pacific, Australia
China: Shanghai, Hangzhou, Liuzhou, Tianjin, Luoyang, Beijing
India: Coimbatore, Pune
Singapore: Singapore
Taiwan: Kaohsiung

Sales Division Industrial Technology 2017

Wind Power Technology 722.0
Off-Highway Systems 1 247.9
Aviation Technology 80.9
Construction Machinery Systems 835.8
Marine and Special Driveline Technology 512.3
Industrial Drives 62.6
Marine Propulsion Systems 234.2
Components 132.3
Special Driveline Technology/Rail 278.1
Test Systems 88.0

All sales in million Euros, sales non consolidated
Mobile worldwide with ZF Aftermarket

The division Aftermarket of ZF Group guarantees the performance and efficiency of vehicles throughout their life cycle, with integrated solutions and the entire ZF product portfolio. Its combination of the established product brands Lemförder, Sachs und TRW, digital innovation and technical information, customized products and services, and a worldwide service network has made ZF a sought-after partner and number two in the global automotive aftermarket.

With Openmatics, ZF Aftermarket sets new standards across the telematics market. The system is highly flexible, and suitable for professional fleet management as well as asset tracking, yard management, and vehicle diagnosis.
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