



## Making it Easier to Move Heavy Loads: ZF Drive Solutions for Terminal Tractors

- **PowerLine automatic transmission offers the perfect ratio of curb weight to torque and vehicle mass**
- **The CeTrax electric drive generates zero local emissions at the depot**
- **CeTrax is available as a system solution with drive control and inverter**

**Friedrichshafen/Shanghai. Terminal tractors are an important component in a smooth logistics chain. They ensure that valuable loads find the right transport at the depot or other reloading points. Since this means moving heavy containers to and from, the drivelines in these tractors have to be powerful and respond reliably. ZF's PowerLine automatic transmission for conventional vehicles and the CeTrax central drive for electric vehicles, both part of its driveline technology portfolio, offer manufacturers the right solution for every need.**

China's rise to become a global economic powerhouse and its triumphant entry into the field of e-commerce are causing a major boom in the logistics industry. In light of the rapidly surging flow of goods, forwarders must be able to rely on their vehicles. ZF's reliable and powerful drive solutions for terminal tractors are helping to ensure that cargo gets from ship to depot to outbound trucking without any problems.

### **PowerLine is conventional yet powerful**

PowerLine is an 8-speed automatic transmission that can transmit up to 1,200 Nm input torque at a fuel-reducing spread of 7.65 or 10 with a torque converter. Because PowerLine was designed for vehicles with a gross vehicle weight up to 110 tons, even the heaviest loads are not a problem. Nevertheless, its dry curb weight on the scale only amounts to 149 kilograms. The ZF transmission is also impressive when compared to the competition.



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When put up against its competition, PowerLine is 45 percent lighter and reduces fuel consumption by up to ten percent. Its performs 30 percent better when accelerating and a third quieter in operation. An integrated dual torsional damper and an intelligent transmission control now mean that commercial vehicles intended for use at the depot can provide the same automatic shifting comfort you get in a passenger car. Automatic engine stop functionality and hybrid compatibility promise further potential savings.

**CeTrax is electric and efficient**

With the CeTrax electric central drive, ZF has launched a zero local emissions drive solution for depots and other logistics centers to the market. As CeTrax is built on a plug-and-drive approach, it can be integrated into existing vehicle platforms without having to make major changes to the chassis, axles, statics or differential. This allows ZF to target manufacturers and retrofitters that want to switch from the existing conventional platforms to electrically-driven versions. CeTrax handles even the most challenging shuttle jobs with a maximum output of up to 300 kW and a maximum torque of 4,400 Newton meters. At the same time, the drive offers considerable weight advantages and an outstanding degree of efficiency. Since the delivery scope of the system package includes drive control and inverters, manufacturers get an optimally fine-tuned complete solution when it comes to performance, efficiency and service life. In addition, the electric central drive responds almost silently and even conforms to the legal noise parameters at night, ideal for operators who need to plan additional shifts at peak times.

Captions:

17.) Shifting qualities at the premium automotive level: The ZF 8-speed PowerLine is now setting the automatic transmission standard for commercial vehicles.



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18.) The CeTrax electric central drive enables terminal tractors to shuttle goods with zero local emissions.

Images: ZF

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**ZF Friedrichshafen AG**

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 146,000 with approximately 230 locations in some 40 countries. In 2017, ZF achieved sales of €36.4 billion. ZF is one of the largest automotive suppliers worldwide.

ZF allows vehicles to see, think and act. The company invests more than six percent of its sales in research and development annually – in particular for the development of efficient and electric drivelines and also in striving for a world without accidents. With its broad portfolio, ZF is advancing mobility and services in the automobile, truck and industrial technology sectors.

In the Industrial Technology Division, ZF pools its activities for off-road applications. These include the development and production of transmissions and axles for agricultural and construction machinery along with driveline technology for forklift trucks, 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 and industrial applications. Test systems for all kinds of applications in driveline and chassis technology are also included in the division's portfolio.

For further press information and photos, please visit: [www.zf.com](http://www.zf.com)