



PRESS INFORMATION
PRESS RELEASE

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Systematic Enhancements: ZF Shows with the Efficient EcoWorld 2 the Future for DMU Drive Systems

- **The Irish state railroad has ordered three MTU PowerPacks with high-performance ZF transmissions**
- **EcoWorld 2 integrates improved reversing gear with two shift positions**
- **New wheelset gearbox allows a variety of applications**
- **Repowering prolongs the vehicle's service life and reduces operating costs**

Berlin/Friedrichshafen. At InnoTrans 2018, ZF's most recent development, the EcoWorld 2 DMU transmission, shows what the future of rail traffic will look like: quiet, economical and comfortable. This powershift transmission has six speeds, an integrated reversing function and hydraulics as well as reduced interfaces to enable retrofit to existing vehicles and thus reduce costs. A new wheelset gearbox with drive shafts allows EcoWorld 2 to be combined with various axle ratios, which opens further application fields. This development expertise has also convinced the Republic of Ireland's state railroad, Irish Rail, to order three MTU PowerPacks and in which the EcoWorld 2 transmission is integrated.

For the initial volume production, ZF has once again revised and extended EcoWorld 2. From now on, the reversing gear with two shift positions will be integrated directly in the transmission. A newly developed wheelset gearbox completes ZF's drive solution. The result is a new drive system that can be combined with a range of axle ratios. This makes it suitable for slow speed operations as well as for fast rail vehicles in long-distance transport. At higher ratios, EcoWorld 2 also handles steep gradient routes without difficulty.



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Powerful, compact and cost-efficient

EcoWorld 2 is designed for a drive power maximum of 600 kW and an input torque of 2,500 Nm. It is also equipped with an optional advanced coasting function, which allows additional fuel savings of up to five percent depending on the route, engine type and load condition. As the compound rotates at a significantly lower speed due to its increased degree of efficiency and the transmission ratios of the hydromechanical transmission, there is less noise in the railcar's interior. This significantly improves travel comfort for passengers. In addition, the transmission is prepared for various optional condition monitoring functions.

Prolongs service life, reduces operating costs

ZF's EcoWorld 2 can also be integrated into existing trains where it can deliver the previously mentioned benefits. Using this procedure, known as repowering, operators do not have to replace the entire driveline in order to extend the trains' usability. Prolonging the vehicle's service life significantly reduces operating costs.

Development Competence Leads to Volume Production Order

The new EcoWorld 2 six-speed transmission system by ZF is installed into MTU PowerPacks. Irish Rail, the Republic of Ireland's state railroad, has ordered three of the completely integrated drive systems for their diesel-powered 22000 Class Intercity train. This will operate on the 266 kilometer long route between Dublin and Cork. When compared to conventional hydrodynamic transmissions, EcoWorld 2 consumes nearly up to 20 percent less fuel on these journeys. It also reduces CO₂ emissions to the same extent.



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Caption:

- 1) The EcoWorld 2 hydromechanical powershift transmission by ZF will soon be installed in a diesel railcar operated by the Irish state railroad.
- 2) EcoWorld 2 is designed for a drive power maximum of 600 kW and an input torque of 2,500 Nm.

Images: ZF (2), Irish Rail (1)

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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